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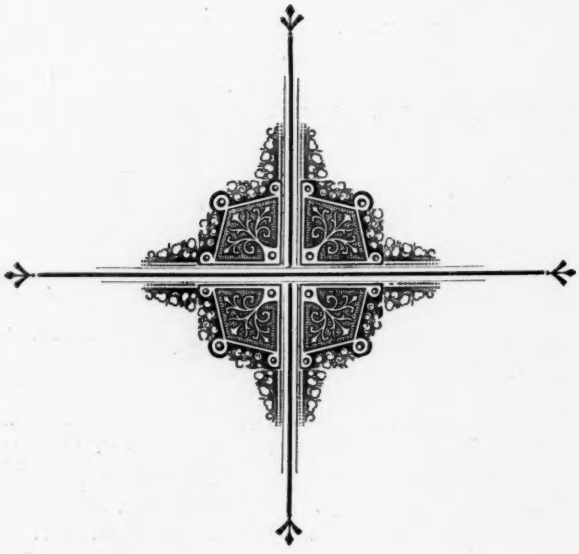

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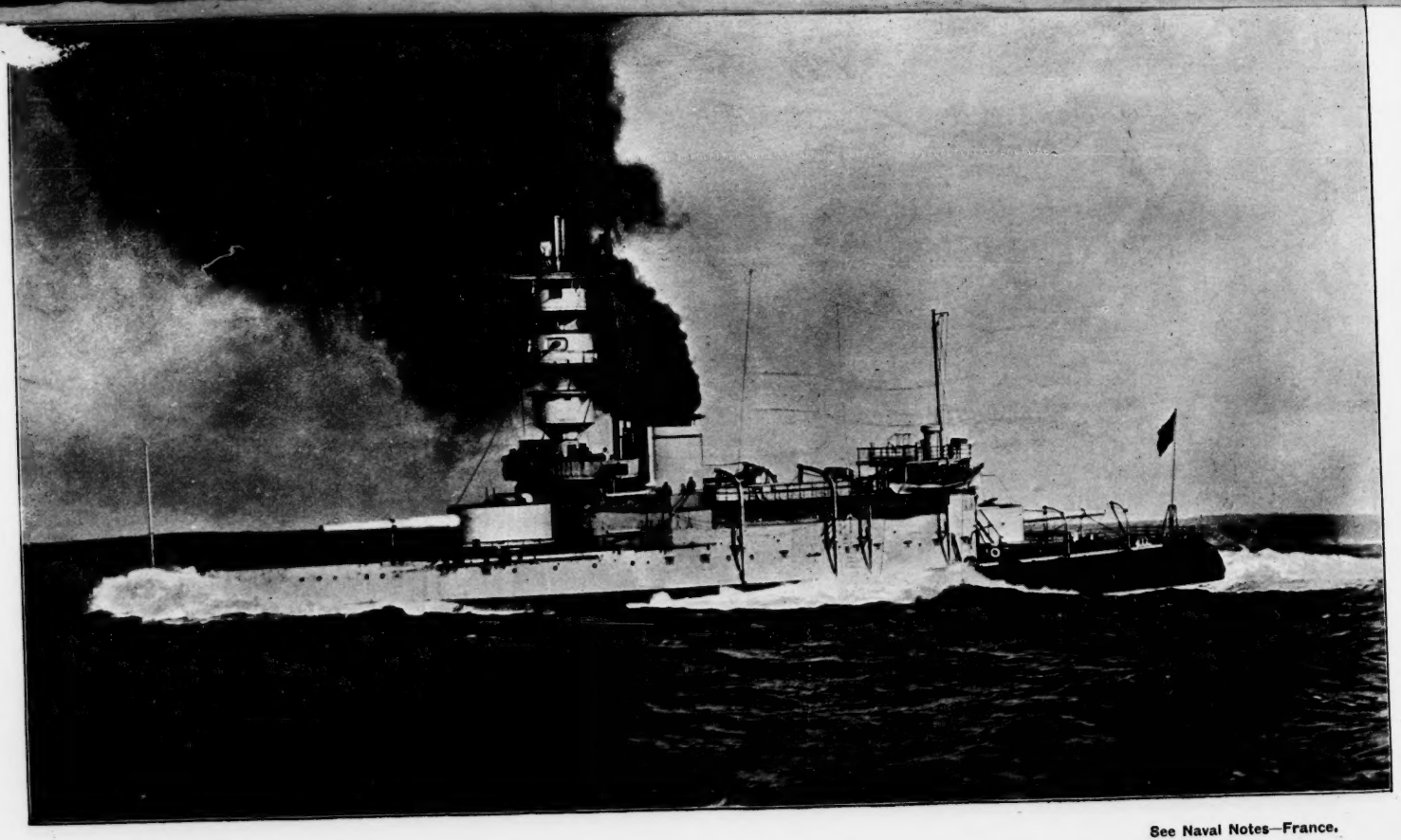

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A REASONABLE SYSTEM OF COAST DEFENCE.

By Captain S. LUSHINGTON, R.A., Adjutant Cardigan Militia Artillery.

Monday, June 13th, 1898.

Field-Marshal Sir DONALD M. STEWART, Bart., G.C.B., G.C.S.I., C.I.E., Governor Royal Hospital, Chelsea, in the Chair.

"Britannia needs no bulwarks, no towers along the steep;
Her march is on the foaming wave, her home is on the deep."

AT the present time the nation appears to have awakened thoroughly to the necessity of putting its military forces on an efficient footing, while the value and importance of the Navy have for the past few years been fully understood and appreciated by the majority of the public; but there is, however, a portion of our national armour, I mean our coast defences, which have excited but little criticism except from those two masterly exponents of our naval policy, Admiral Colomb and Sir George Clarke. These two writers have dealt with the general aspect of the case, and one cannot help thinking their indictment of our present policy in this matter so grave and so sweeping as to call for the earnest attention of every military man, and more especially of those whose duties are most closely connected with coast defence.

Money has been cheerfully voted by Parliament in hundreds of thousands to provide docks, harbours, coaling stations, and their defences, and it is with regard to the last-named, past, present, and future, that I would call that policy in question, not in any attempt to lay down the law, but as a seeker after the most rational and economical method of ensuring its aims. All over the world our naval bases are heavily fortified; they bristle with guns; they are elaborately guarded by mine-fields

that block every channel; they absorb Garrison Artillerymen by the hundred, nay, in some places by the thousand, and yet the cry usually seems to be for more.

It appears to be looked on as an accepted fact that a naval base needs all this. This may be so in the case of a foreign country; but as regards Great Britain is it true and reasonable; and if so, on what arguments, or on what teaching of history is the dictum based?

Mahan has showed conclusively that by sea-power Great Britain exists, and this fact is rightly recognised as incontrovertible and agreed to by all. The day that our fleets have to take refuge from an enemy under the guns of our fortified harbours, that day the Empire is doomed, and must fall without the necessity of landing a man upon our shores or bombarding a single port. Our commerce is our life blood: when its free circulation stops death must ensue. No Treaty of Paris, no attempted evasion of capture by transfer of our shipping to a neutral flag, will avail us when we are fighting for our very existence; for what nation can expect to enforce a paper convention without strength to back up her demand? Our fortified ports can not then be intended to protect a thoroughly beaten and shattered fleet. For what, then, are they intended? Their functions may be divided into three heads:—

1. The protection of our ships while refitting, coaling, or taking in supplies.
2. The protection of our dockyards, the ships building therein, our stores and coal.
3. To prevent the disembarkation of the land forces of an enemy and the capture of the port by them.

Taking the first case, what amount of protection is needed by a strong fleet during this period; or rather, what weaker fleet would dare to follow up a stronger, to meet it coming out of port, a giant refreshed? By the axiom laid down, that without command of the sea we die, our fleet must be the stronger one. Let us, however, for the sake of argument, allow that our fleet has suffered loss by torpedo raids, or by unsuccessful actions, and so has become but equal to, or even weaker than, the enemy, but still a fleet that can strike a blow for victory. What measure of coast defence would deter an enemy from expending his ammunition and coal, and risking his ships in attacking a port, knowing full well that our fleet within must come out to fight, or we must perish? To judge of the chances between an attacking fleet and coast defences let us look at one or two of the examples furnished us by history, remembering also that every day the type of war-ship constructed becomes less fitted to encounter guns on shore. At Alexandria, in 1882, it took the British fleet a long day's bombardment in fine calm weather, and an expenditure of 1,731 rounds of ammunition from 7-inch guns and upwards, 1,467 rounds from their smaller guns, besides the Nordenfeldts and Gatlings, to silence temporarily some badly constructed and exposed forts on low sites, whose fire was badly aimed, and ammunition indifferent, and yet the actual damage done to these forts was, comparatively speaking, small, and

many of the guns could have been fought next day. The bombardment of Sfax by the French fleet, consisting of eight armour-clad and eleven unarmoured vessels, a bombardment continued on six days, resulted in but little damage to such works as the Tunisians possessed, the French suffering practically no hindrance in the shape of hostile fire, which was feeble in the extreme. The Japanese fleet at Wei-Hai-Wei made no impression in their attempts at bombardment, in fact they themselves suffered far the most until their land forces turned the scale in their favour. In these three cases the attacking fleet held undisputed command of the sea, or it could not have dared to attack; in fact, only in the last case did a hostile fleet exist, and that was thoroughly beaten and disorganised.

The effects the fleets produced were but small in comparison to the expenditure of ammunition, which must have been, in the first two cases certainly, so great as to leave the ships perilously short, had a naval counter-attack been possible. As regards the effect of the coast defences on the ships, at Sfax there was no serious attempt made to disable the French fleet; at Wei-Hai-Wei the Japanese flag-ship was badly knocked about, besides injuries to the rest of the fleet; and even at Alexandria some of the ships of our squadron, relatively strong as it was, compared with the fortifications, received very serious damage, notably the "Inflexible" and "Sultan." No submarine mines or torpedoes were used by the Egyptians.

Cannot we infer from these cases that defensive power of the same relative strength as compared to a modern fleet, as that which the Egyptians actually displayed against our fleet (for all the guns they had mounted were not used), is more than sufficient for our most important naval bases? The guns required need not be mounted in such gratuitously exposed and badly designed works as they were at Alexandria, and better *personnel* and *matériel* are to our hand, all of which factors tend to lessen the amount of armament needed. Admitting that our fleet is, through casualties, at the lowest point of strength it can be for England yet to fight on, what enemy would run the risks of attacking a port with even such power of defence as suggested by this example of Alexandria, knowing that a naval battle must be imminent against a nearly equal fleet?

The next point is the defence of our dockyards, their contents, the stores and coal collected there, against a hostile fleet. There are two methods by which this operation may be attempted: firstly, by reducing the defences by bombardment; and secondly, by running past them if possible—the destruction of the dockyards, coal, and stores, being of course contingent on the success of either of these two methods. The first-named system of attack is similar to the case already discussed of the protection of a fleet in harbour, except that the port is the first objective, and that our fleet in this case is supposed to be somewhere at sea, or lying in some other port. The arguments already used as to land defences *versus* ships apply equally.

The question, however, arises, Can we reasonably expect our fleet to arrive in time to prevent this project from being carried to a successful

conclusion against moderate coast defences, or are we to trust solely to these defences, and thereby justify our present policy of heavy armaments?

In these days of telegraphs, swift cruisers, and improved methods of signalling and communication, to say nothing of the speed and certainty of locomotion given to a modern fleet by steam, it implies almost a criminal carelessness or stupidity on the part of an admiral commanding a superior, or even an equal, fleet, to allow his enemy so thoroughly to elude him as to have time to carry out an operation of so serious a nature, and having done it, to return unmolested to his own ports, there to replenish ammunition, coal, and stores, and to take with him such injured ships as there may be, which would necessarily cause him to move at a slower speed than a sound fleet. I assume the hostile fleet must be a large one, as the reduction by bombardment of even the most moderate coast defences needs great superiority in gun-power on the part of the attackers.

In addition to all these conditions necessary to success, the sea must be calm to enable the ships to fire accurately enough to hope to silence guns well mounted on high sites, where each vulnerable target amounts perhaps to a square yard. If shrapnel is to be used to kill the detachments, an enormous range is required to obtain an angle of descent that will enable the bullets to reach gunners behind a proper parapet, and the most accurate timing of the fuzes is also necessary.

With Alexandria and Sfax as examples it would appear that at the very lowest estimate over twenty-four hours would be required to subdue a very few well-mounted and well-served modern guns; add to this the time necessary to destroy the dockyard and *matériel*, in the face of opposition of land forces; for without landing men to do this it would need a very heavy increase in expenditure of ammunition to attempt it by shell-fire, as past undertakings of this kind have shown. We may safely assume that not less than forty-eight hours are required for the whole affair, and double that time would be probably no exaggerated estimate. In forty-eight hours we should reasonably expect our fleet to cover at least 500 knots; deduct from this half a day for the transmission of the message for help, and we have a circle of about 400 knots for our fleet to wander about in, and yet be available to capture and destroy an adversary just starting to return home with crippled ships and exhausted magazines. Would the destruction of one single naval base repay an enemy for the loss of a strong fleet? It is true that the loss of a naval base in far-away waters, where the repairing and restocking would have to depend on sea-borne aid, is more serious than that of one containing inland resources, such as our home ports; but it also implies very much greater danger to the attacking fleet both in going and returning, owing to the longer journey from their own ports.

Are we, then, to stultify our Navy by keeping up expensive and heavily-armed coast defences to defend us from an extremely problematical attack, and one that involves such long odds against the attacker, when defences of a much more moderate nature would serve our purpose equally well? Do we remember that the be-all and end-all of our Navy is

to find and attack hostile fleets, and yet commence by presuming they are unable to do so? As regards the attack by running past, this does not imply the use of many ships of great gun-power and heavy armour, and for obvious reasons battle-ships would hardly be sent on this service. It would more probably be attempted by ships of great speed, of cruiser type, or smaller, down to torpedo-boats; their capture or destruction, so long as they succeeded in their aim, would not be of such vital moment, and they would also be more likely to be able to evade our naval guardians than a large fleet; it may, in fact, be considered that the risk incurred is smaller in comparison to the advantages to be gained.

Running past has been extremely successful in former wars—witness Admiral Farragut's deeds in the American Civil War, when on many occasions he successfully performed this operation, even by daylight; it must, however, be remembered that brave as the Confederates were, they had no large number of trained artillerymen, and rather inferior ammunition and guns. Ships, too, were far better able to sustain the effects of artillery fire in those days, and submarine mining was in its infancy. During the Brazilian Civil War of 1893 Admiral Mello on several occasions took both armoured and unarmoured ships past the defending forts, both by day and night; one, the "Urano," an ordinary merchant-vessel, was sunk while attempting the feat; but, as a general rule, the less said as to the gunnery shown by the coast defenders the better. At Wei-Hai-Wei the Japanese torpedo-boats made several attempts to run past, with varying success, but what advantages they gained were largely due to the fact that part of the land defences of the port were in their own hands, and that the Chinese neglected the most elementary precautions of using search-lights and keeping a good look-out. In this example the object aimed at by the Japanese was, of course, the destruction of the Chinese war-ships; but whether torpedo-boats run past in order to attack war-ships, or blow up dockyard gates, it remains equally to coast defence to prevent them by every means in its power. Once torpedo-boats get past defences, war-ships must protect themselves, as any small armament placed to command the actual docks could not be used if ships were lying all about.

If it is a question of cruisers or gun-boats running past (which naturally implies that no fleet is lying in the harbour)—should they be successful in passing coast defences composed of a few Q.F. guns of medium calibre, assisted by controlled torpedoes, electric search-lights, and submarine mines, as suggested further on—a very small armament commanding the dockyards and stores themselves would suffice to make the position untenable by the invading ships, unless they were well armoured. To possess such protection, ships must be of a size that would prohibit the high speed and good manœuvring power in narrow waters that are essential to a successful attempt to run past, besides presenting a large target to the shore guns. It is most likely our assailants will be of the torpedo-boat type, and against these no one advocates many and heavy guns. If their object is our fleet at anchor, then the torpedo-boat destroyers accompanying it will first have to be

reckoned with outside the port; for Admiral Long showed in the Naval Manœuvres of 1891 that this kind of counter-attack was the best method of defence.

No doubt attack on ships in port by torpedo-boats more properly comes under the first heading of coast-defence functions, but it is more convenient to discuss it under the second heading which includes running past, because as stated before it entails no alteration in the system of coast defence, whether the objectives finally aimed at by the attackers are ships, docks, or stores. If the torpedo-boat destroyers are eluded or are absent, what precautions must be taken against hostile torpedo craft? A few Q.F. guns of small calibre, efficient search-lights, and submarine mines so placed that a good and safe deep-water channel is left properly buoyed and lighted, are the requirements indicated.

This last proposition may sound absurd and paradoxical, but I venture to say there are arguments in its favour. In Sir George Clarke's paper "Submarine Mines in their Relation to War," he has clearly shown the danger of entirely blocking our harbours, and the damage and loss that would most certainly ensue amongst our merchant shipping if this course was pursued. A clear passage through a mine-field, properly buoyed and lighted, would enable friendly ships to enter at all times; while the mine-fields on either side would render it very hazardous for hostile cruisers or gun boats to leave the open path, and would be especially useful in preventing light-draught torpedo craft from creeping past in unexpected places. It should be comparatively easy for guns to bar the open passage to all enemies by their fire, where every yard of the range ought to be accurately known, and fixed beam search-lights thrown upon it. The argument that if the position of the mine-fields be known, the enemy would take steps to destroy it, is one that will hardly hold good in the face of the experiments in countermining that have been held in this country, which proved such an operation impossible if attempted under fire. The position of the mine-fields should be made subsidiary to the position of the coast-defence armament, so as not to require special guns for their defence. There is yet one more danger that might come under this heading, provided that free access to the port is allowed to all merchant shipping both by day and night. This is the danger of a party of the enemy being concealed in a captured merchant-ship, with instructions to enter the port by night as a peaceful trader, and endeavour to blow in dock gates, and set fire to stores and coal before they were discovered. I would suggest that an examining station be marked out in every harbour, at such a point within the defensive area as would secure immunity from a sea attack, much in the same way that an examining station is placed near the outpost line of a field army.

Every merchant-ship entering the port would have to wait there until properly inspected. A torpedo-launch kept for this purpose would most easily dispose of any ship which did not obey orders, or refused to surrender when found to contain any such hostile party. In order to prevent any surprise by hostile war-ships, every British war-ship desiring

to enter a port by night should be obliged to make certain private signals before entering the defensive area at all. It might be possible in many cases to have the examining station under fire of the coast-defence guns; a fixed electric beam on the station would be a necessity. Should a hostile ship succeed in eluding all these defensive precautions, a telegraph message to the dockyard would ensure it a warm reception on its arrival, and effectually frustrate any hope of surprise.

The third object of coast defence is, of course, restricted to the shores under fire of the fortress guns, and it is hardly within the bounds of reason to suppose such shores would be selected for the disembarkation of any considerable body of land forces, so long as the guns commanding it could be worked, without taking into consideration the fact that many other suitable places are to be found, where no such obstacles to disembarkation exist. The attack on coast defences by land forces, disembarked at some point beyond the defensive area of the fortress, lies within the province of its mobile garrison, and calls only for the protection of the rear of the coast batteries, by closing these faces with earth-works sufficient to resist field guns.

This third function involves the admission of that extremely problematical occurrence—the landing of a hostile force on our shores. If the foregoing arguments as to the functions of the coast defence of British ports are reasonable, and the probability of attacks on them with their strength and duration rightly estimated, having regard to the fact that by sea-power we live, what measure of coast defence do we need?

Some defence we must have, or the naval bases of the Empire would lie open as tempting prizes to the first cruiser that would dare to stake her chance of capture against the hope of destroying so much that is vital to the existence of the Navy. It is manifestly impossible to lay down a hard and fast rule to apply to every naval port; local conditions and probable strength of any attack ever likely to be made on it must be most carefully studied; but one may venture to suggest an approximate maximum limit for our largest and most important naval bases, near hostile ports which shelter powerful fleets. Such a limit might be found in from two to four 9·2 B.L. guns, six 6-inch quick-firers, six or eight 3-pounder or 6-pounder quick-firers, some Maxims in case of attempted raids or surprises by small landing parties, and four heavy howitzers or high-angle fire guns. This would form an armament not to be despised by the strongest modern fleet, and would be rendered still more formidable if assisted by controlled torpedoes, such as the Brennan, and submarine mines where considered necessary.

This gives a maximum of fourteen modern guns of heavy or medium calibre for a first-class naval base, as against the present huge armaments kept up in each and all of our coast fortresses. From thirty to fifty heavy guns are no uncommon number to find in almost any coast fortress, many of them mounted in forts which are monumental

erections of masonry and iron designed *à la* Stilton cheese, conspicuous for miles for all men to see. The very fact of forts being built of such materials enhances the danger to those who garrison them if subjected to fire from modern heavy guns. As regards garrisons, the number of artillerymen required for the reduced armament would be roughly one-third at most of our present numbers; the remaining two-thirds might be advantageously employed in increasing our slender mobile forces. If the proposition for reduction of armament is sound, we need retain only the most advantageous positions to place our few guns in, for we waste every penny we spend in keeping up antiquated or unnecessary forts and over-done armaments, to say nothing of the large amount of material of all kinds required for them.

If submarine mining and controlled torpedoes were worked by Garrison Artillerymen, it would tend to a unity of control in coast defence, which might possibly mean increased efficiency. It would certainly be an advantage that officers should receive eighteen months' or two years' training on board both war-ships and torpedo craft during the earlier period of their services, and this privilege might be also extended to some of the selected rank and file for a shorter period. It would give them some measure of practical acquaintance with the construction, tactics, working, and appearance of the kind of foe they are expected to fight, and they could then realise to what extent weather is a factor in naval operations, and how much may be dared and done by skilful sailors under differing weather conditions.

If possible, every year two or three days' operations, under war conditions, should be undertaken in every defended port, in conjunction with the Royal Navy; this would entail but little expense if carried out by some of the ships or torpedo craft in commission in or near the vicinity of the port. At present, in many ports in such operations as take place, the attacking battle-ships, cruisers, or torpedo-boats are perforce alike represented by two or three slow and small launches, run by some long-shore mariners, who know or care no more about the matter than a mud turtle. The time of attack cannot but be fairly well known, as the launches cannot be spared, and are often not fitted, to go to sea for a day or two, so that an attack may be delivered under more realistic conditions. The mere fact of telling men that a launch represents a battle-ship, or a cruiser, or a torpedo-boat, does not make the instruction to be gained by these manœuvres very realistic or impressive, and entirely does away with the element of surprise and the necessity of quick decision as to the method and disposal of the defence on the part of the defence commanders. It is something akin to teaching a young shot to kill rocketing pheasants by means of shooting at clay pigeons. It is not inferred that such practice as these launches give is not useful for the earlier phases of the training of *personnel*, or that the Navy never take part in coast-defence operations, but this latter does not happen regularly enough and often enough. In the Auxiliary branches of the Garrison Artillery more especially, there are many men whose only idea of a war-ship is gathered from pictures in illustrated papers.

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This cannot be conducive to good results should the need ever arise for Garrison Artillery to put their training into actual practice. We are told that the strain of watching and waiting in our forts, not knowing when the enemy may turn up, nor what class of ship may be expected, nor what form of attack may be employed, will be found the most trying part of coast-defence warfare. Can we not to a certain extent accustom ourselves to these conditions in peace manœuvres? Two or three days' mimic warfare, when the search-light rays might at any moment of the night discover an attempt on the part of a cruiser or two to run past, or a torpedo flotilla, taking advantage of misty weather might try to evade the watch on shore, or any other realistic object-lesson in coast warfare might occur, would soon test the practical training of our *personnel*, and be of mutual professional advantage to attackers and defenders; if our Navy is to be supreme at sea, such work must at some time or other fall to its lot. Granted that we may reasonably expect it to guard our coasts, we ought not to add any incentive to the enemy to break through or evade that guard by totally undefended ports; and then the question remains—What amount of fortification and armament can reasonably be expected to form an efficient deterrent? Can it be possible that we need our present heavy armaments for this purpose? If not, we are worshipping a fetish which demands sacrifices of men and money that would be better employed in other aims, and, like all other idols, will be powerless to save us when danger threatens our existence.

There is an old proverb which passes judgment on those who rush in where angels fear to tread; but it is worth the risk of coming under this ban, if by doing so the thorough discussion of the question is secured, "Whether reform in our coast defence is needed, and if so, in what direction, and to what extent?"

Colonel J. A. FERGUSSON (late Rifle Brigade):—The paper seems to me to deal with an important national question, and I very much regret the small attendance. Perhaps the Levée has something to do with it. There are three points in the lecture I should like to say a word upon, although not belonging to a scientific branch of the Service one speaks with great diffidence on such a subject. I think Captain Lushington's summary of the three functions which a fortified port should serve is a very good one. He says the first function is "The protection of our ships while refitting, coaling, or taking in supplies"; the second is "The protection of our dockyards, the ships building therein, our stores and coal"; and the third is "To prevent the disembarkation of the land forces of an enemy and the capture of the port by them." What I wish to say refers only to the first heading, and I shall not allude to home defence, but to the defence of our coaling stations abroad. I was for five years brigade-major, and deputy-assistant-adjutant-general afterwards in Colombo in Ceylon. Colombo may perhaps be called the Clapham Junction of the sea: it is the junction of three great shipping lines to Calcutta, China, and Australia, and a great number of ships which pass through Colombo to Bombay. At Colombo every week three outward-bound P. & O. steamers and three homeward-bound meet. Besides this, a large number of the great shipping lines make it their coaling station—the Orient Line and others. I have known as many as twenty-five great ocean steamers in Colombo at once, and there is always an enormous supply of coal. It is not at all an uncommon thing for six first-class P. & O. steamers to be there at one time. I think, therefore, that everybody must see that quite

putting the Navy out of the question, Colombo is an important coaling station. But it also, in time of war, would be enormously important for the Navy to run to Colombo to refit. Even supposing that it were of no use to our own Navy, because Trincomalee is also available, it would be an immense advantage to a foreign fleet to be able to fill their ships with coal at Colombo. You would think that the War Office in fortifying Colombo would think first of all of protecting our enormous coal supply there. There is a splendid harbour at Colombo, protected from the south-west monsoon by a magnificent breakwater, and now I believe it is also protected from the less danger of the north-east monsoon by a northern arm. This harbour is the coaling station. Within this harbour lies the enormous supply of coal of which I speak. Would it be believed that the War Office, in order to defend Colombo, erected a very large and expensive fort about a mile away from the harbour, not commanding the entrance to the harbour or the harbour itself in the least, firing out to the open sea where no ship could lie, because in the south-west monsoon it would be on a lee shore, and there is always a heavy surf. No cruisers of a foreign hostile fleet would dream of lying outside and shelling Colombo, the town being quite invisible from the open sea. Colombo is a city of mud huts. The population is, I think, about 60,000, but the houses are what we used to call in Australia "wattle and dab." The whole value of the city is small architecturally, and no naval officer in his senses would dream of shelling it. The only thing to be feared therefore at Colombo is the seizing of our coaling station. The moment I found out about this fort being erected so as to fire out to the open sea, and of no use to anybody, I represented it to my general, as in duty bound. He said, "The thing was settled before I came here; it is no business of mine to report on the site, I have to report on the efficiency of the works when they are constructed." (That was before a single sod had been turned.) "It has been settled where the fort is to be; it is not my business to report on that, but it will be my business to see that the work is efficiently carried out." I was going home on leave, and I went straight to the Inspector-General of Fortifications Office and pointed out the great mistake which was going to be made. The officer responsible for the work, no, I will not say responsible—nobody ever is responsible at the War Office—but the officer in charge of the carrying out of the work, received me very graciously indeed. He said, "The Inspector-General is away and he has asked me to see you about this." I pointed out the absolute uselessness of the fort. He said, "I only wish we had known this before, but the thing has now gone too far." My general is dead now, the officer who interviewed me is dead, and the mischief is done, and I only say this because it seems to me of national importance that these mistakes should not be perpetuated year after year. There were two thoroughly able and competent military advisers at Colombo. The officer commanding the Royal Artillery was an extremely able man, as was also the Commanding Royal Engineer. Instead of taking their advice, the War Office sent out two officers, who spent two days there, and their report was adopted, and upset all the views of the officers who knew the island. I may be wrong in mentioning these facts, but I think it is a duty one owes to one's country to protest against that way of doing business. I know since those days other forts have been erected to command the inside of the harbour, and therefore I am not saying anything which can do any harm. Colombo now will give a very good account of itself; but I hope the dictum of Captain Lushington will be borne in mind, and that in future fortifications erected at our coaling stations will be put up at points where they will really defend the coal supply, and forbid the entrance to the harbour to foreign ships. There is only one other point I should like to say a word upon. I entirely agree with Captain Lushington that the risk of a hostile squadron landing a force on our shores, whether at home or abroad, is comparatively small. What he calls the mobile garrison, whether at home or abroad, will I have no doubt be quite sufficient to give a good account of any hostile troops who may be rash enough to attempt to land. Count von Moltke once said he had often seen how to land a

orce in England, but he had never seen how to get it out again. I think all our possessions abroad will probably be able to defend themselves against a force which may be actually landed. Captain Lushington is quite right where he says that submarine mining and control-torpedoes might very well be worked by Garrison Artillery, and that unity of control would thereby be secured. We have listened to a very valuable lecture. It is a great pity the audience is so small, but it will no doubt be read and discussed and studied by a much larger audience outside.

Major F. RAINSFORD-HANNAY, R.E. :—I rise with some diffidence, as I did not come here prepared to make any remarks. I have not been able to obtain a copy of the paper. I jotted down a few notes while it was read, but I am not sure that I have them correctly. Further, had I not sent up my card before the last speaker, I should have refrained from doing so, because I am a humble official of the War Office, and they have received such a slating at his hands that I would have preferred to keep in the background. However, as I have been there only a few months, I may be allowed to speak as an outsider. I have been connected with submarine mining for a good many years, and I come here rather expecting to hear something radical in the way of a system of coast defence, but I am greatly relieved to find that the lecturer's views are very up-to-date, and very much represent the views of people who think of these matters at the present time. In the first place, he advocated that no harbour should be entirely blocked. I think I may safely say that no harbour is entirely blocked. It is now the universal system in conjunction with the Admiralty that a channel is left open for traffic. In the second place, the lecturer advocated examination stations; those also exist or are in process of being prepared at every station, also in conjunction with the Admiralty. The lecturer also advocated a system of private signals, and those come under the same category. I think I may safely say that on these points his views are the same as those of the War Office and the Admiralty. As regards the armaments of many of our coast forts, of course we move with the times. Those old forts, of which the lecturer spoke somewhat contemptuously, did their duty in their day, they are out of date now, but those who have not been connected with it can hardly conceive how difficult it is to re-model and re-arm a fortress all at once. We cannot get new guns and we cannot get new forts all at once. If we were starting with a clean sheet, I think probably that very much the lines the lecturer lays down would be followed. I do not think the idea now is to have very heavy armaments, and in fact where these old muzzle-loaders exist, in many cases a great many have been taken out of the existing forts. The lecturer advocated the *personnel* of coast defences being trained by operations involving the strain of watching for an attack. Electric lights are progressing very rapidly in these days. They are very much on the increase in most quarters, and I hope before long it may be possible to find the arrangements complete and up-to-date at several forts, and that practice may be carried out, say, every night for a week. If we could work in conjunction with the Navy and have attacks, we should probably do very much what the lecturer has advocated, viz., have the strain of waiting for an attack for several nights in succession. There is one other point to which allusion has been made both by the lecturer and the first speaker, and that is, a recommendation that submarine mining should be worked by the Royal Artillery, whereby they think the efficiency of the Service would be improved. I quite recognise the point about unity of control, but I would only say that in my opinion the submarine mining service is in a very efficient condition indeed, and perhaps it would be better for me not to give vent to my opinion as to whether or not it would tend to greater efficiency to place it in other hands.

Major A. D. SETON (Forfar Kincardine Artillery, Southern Division, R.A.):—I do not know that I have much to add after the remarks of the previous speakers, but it seems to me that much of what the lecturer says about the reduction of the

amount of armament is sound. I can hardly think, however, that he would propose to place only 13 or 14 guns at Portsmouth. I imagine he would have more than that; but he lays that down as a maximum for a first-class naval base. As regards mobilisations, very few have ever taken place at Portsmouth. The last, I think, was in Whit-week, 1892, when the Duke of Connaught was the general commanding. His Royal Highness, with the common sense he always applies to matters which come under his control, brought about a mobilisation on a considerable scale, in which the defences were very largely manned. Several Militia regiments were sent there, and a large number of Volunteers were called up to take part in the defence. But even then I do not think I am outside the mark in saying that not half the defences were properly manned, or anything like manned. I do not think that is a satisfactory state of affairs. Stores of every description were requisitioned, and yet the supply was by no means sufficient to carry the thing out properly; but, nevertheless, there was an immense number of valuable lessons learned. The Navy, however, did not co-operate. I do not know why, whether it was the expense or what. It was said, just before the mobilisation, that the Navy would co-operate, but it did not come about. It very rarely does. It is a great pity that mobilisations of that kind do not take place, as the lecturer says, a great deal oftener than they do. Until it is actually tried, no one has any idea of the immense number of shortcomings there will be in manning a big place which has several forts. It is perfectly incredible. Difficulties and obstacles turn up in all directions, and we are always finding the want of this, that, and the other thing. Few have any experience, because the mobilisations occur at such long intervals. Those who have learned the lesson of being present at one mobilisation are probably on the other side of the globe when the next one takes place. There is no information except on paper, which is probably safely stowed away in pigeon-holes, and nobody recollects its existence. The lessons which have been previously learned have consequently to be learned afresh to a very large extent. With regard to the want of naval co-operation, I think that that strikes at the root of a very great deal of the weakness in our coast defence. It seems as if coast defence, I mean the sea-front defence of a fortress like Portsmouth or Plymouth, or the sea-front defence of a naval base of that kind, is really naval work. Unless a man has considerable acquaintance with naval matters he is very much handicapped in the position of a fort commander or any responsible situation of that kind. Therefore, I cannot help thinking that the coast-defence work ought to be put into the hands of a more or less nautical branch of the Service; whether you enlarge the marine artillery and put it into their hands, or whether you give the garrison gunners a more or less marine training, by sending some of them to sea. The work ought to be separated from that of garrison artillery in inland stations, for it really is a specialised work, and the more nautical knowledge a man serving in that branch of the Service has the better. The subject has been mentioned of the identification of an enemy's vessels. We have in the forts official pictures of foreign war-ships, but whether the ships are going to be like the pictures is another matter. But I have been told that in time of war, in the Spithead forts, for instance, we shall have a naval officer told off to assist us in identifying these ships. I want to know where the naval officer is to come from. I have never heard that the Admiralty will in war-time have any officers to spare to undertake work of that kind. You want, at any rate, a lieutenant of some standing, it will not do to put the matter in the hands of a boatswain's mate or even of the infallible midshipman; you must have an officer of some standing. I have always understood that there is a short supply of officers in the Navy, of suitable rank, even in peace-time. Therefore, I do not see how the Admiralty will in war-time be able to spare, say, a couple of dozen naval officers at stations like Portsmouth or Plymouth to assist the fort commanders in doing that which I think certainly they ought to be able to do for themselves. With regard to the divided control, at present in a large naval

station we have the mobile naval defence under the admiral, we have the guns of the coast defence under the C.R.A., we have the submarine mines and the electric lights, etc., under the C.R.E., and we have the infantry of the defences under the general commanding the district. Therefore, we have three or four different commanding officers, each of whom naturally thinks that his own particular branch is the most important of them all. And though they all assist each other as best they can, still, a man in time of war is not going to run any risk of spoiling his own business by handing over some of his best men or his best materials to assist some other commanding officer. It will be every man for himself, and somebody else will have to look after the others. Even in time of peace, such a mobilisation as that which I have spoken of leads to a certain amount of friction. It is not always the senior officers who are responsible for it. Everybody knows that when things have to go through officers and adjutants and half a dozen people's hands, there is an enormous amount of friction. Perhaps one man says to himself, "I do not see why I should be bothered about this," and therefore he does not do more than he can help, and the result is the thing gets hung up. If these matters were put under one control, and the coast defence generally of these large fortresses was entrusted to a naval or semi-naval force under the Admiralty, that force could then be given the sea training which the lecturer advocates, and which is, undoubtedly, most essential. Submarine mining, naval tactics, and all like matters which come into coast defence (which form far too large a subject to be dealt with here), would have some chance of being really understood. When an officer comes from, say, the Horse Artillery, or a field battery, perhaps from abroad, and is put into a coast-defence billet, he probably has not seen a man-of-war or a ship for many years; his tastes may lie in some other direction, and he does not know anything about it. The result is he goes to a place like Portsmouth, and about the time he has learned something of his work he goes somewhere else. If war broke out in the meantime, his share of the defence might suffer very much by reason of his want of knowledge of nautical matters. I think the paper is a most valuable one, and I hope it will be a means of ventilating the subject a great deal more than has been done hitherto.

Captain H. J. MAY, C.B., R.N.:—A word from a naval officer might not be amiss. If I had not heard the lecturer's rank and seen his face, I might have almost supposed he was a naval officer in disguise. I can hardly imagine some five or ten years ago, when this question was very warmly discussed, an artillery officer giving such a lecture as this. But times have changed, and I think the members of this Institution may congratulate themselves on having contributed to the far greater unanimity which now exists between the Navy and those entrusted with our harbour defences than existed ten years ago. I believe Sir George Clarke was the man who likened harbour defences to a fierce dog chained up, and a notice placed up, "A fierce dog is chained here." Perhaps I may tell you a little story. A suburban friend of mine chained up a fierce dog, and one day while he was out for a walk a friend of his came to see him; unfortunately, he went round to the back door where this dog was placed for the reception of tramps; the dog received him most warmly and caught him by the leg, and he has been laid up for two months. That, I believe, may happen if we are not very careful with some of our forts. If we were to begin again, I think there is no possible doubt that we should entrust the defence of our harbours to the Marines, as our great admiral, Lord St. Vincent, advocated. But we cannot begin again, and I am confident that, as Englishmen, we shall make the best of what we have. As a naval officer who has come a good deal into communication with those entrusted with our coast defence, I have been surprised at the great zeal and anxiety shown by artillery officers in particular to get at the naval point of view as to harbour defences, and have admired the way in which they have met cold-shouldering and snubbing, when they become too impertinent in inquiring as to

the movements of the ships which are likely to attack them. Notwithstanding all difficulties, they have worked, and are working hard, to find out what it is that we naval officers want them to do. One point I will suggest here. Protection of our ships is spoken of in the paper, but it is not quite clear what ships are meant. A naval officer would say that commercial ships should be protected. We are exceedingly fortunate in getting Colonel Fergusson's experience of the great commercial port of Colombo. Although it was perfectly true, as the lecturer has said, that it might be a most dangerous thing to attack the defences of a port when a fleet was within, a fleet would not be found at a place like Colombo, but only large numbers of steamers and an enormous store of new coal. We cannot keep up our Empire without commerce, and every naval commander-in-chief would rejoice to know that in making his arrangements for the defence of commerce, he could rely upon it that directly the commercial ships got inside the range of the guns of the port they would be safe. Then, again, naval officers will cordially agree with the officers who have studied the matter and who have been so unanimous in thinking that an open channel is a necessity. I was horrified some years ago in talking to an eminent engineer who was planning mine defences, because I came to the conclusion that his one idea of defending a port was to make it something like Culver Cliff, a perfectly inaccessible point of the coast. Now that is the very last thing our ports must be. They must be open to our weakest and most blundering and thick-headed masters of merchant-ships, who must be received quickly and be kept there in safety. If I may question the lecturer's facts for one moment, I am extremely doubtful whether the "Inflexible" and one or two other ships he mentioned were really injured as much at Alexandria as he thinks. The "Inflexible" was perfectly seaworthy, and had something like two-thirds of her ammunition left, as most of our ships had at the end of the bombardment. Finally, we shall be quite content as naval officers if, in the great majority of our ports, we have what the lecturer has sketched out, that is to say, a torpedo-proof port, a port where the weakest ship can run in promptly and be safe, and where there is an excellent co-operation between any local vessels which we may have there, such as torpedo craft, and the shore batteries. I am sure the artillery are most anxious to establish that co-operation, and I hope that we in the Navy are beginning to see that we are greatly indebted to the artillery for what they are trying to do; and that we should meet them more than half way by co-operating in any scheme of sham attack, or in any other way assisting them to make our harbour defences up-to-date as they should be.

Captain S. LUSHINGTON, in reply, said:—With reference to the very kind comments which my maiden effort has received, I should like to say one or two words as to the examination stations, and the entry by private signals. An examination station has appeared as an addition to the Garrison Military Drill Book, although at the time I wrote this lecture I was not aware of its existence. I have also been informed that a private signal code is under the consideration of the War Office. Naturally it is gratifying to me that my humble ideas should be the same as those in authority. As far as the question goes of re-modelling and re-arming the forts, I think that Major Hannay rather misunderstood my idea. I have no wish to have old-fashioned forts re-armed and re-modelled; I wish to see them razed to the ground. I should like to see only the proportion of the present old-fashioned guns left which is absolutely necessary for the safety of the port, until such time as the new guns should be provided. Of course we must recognise that coast defence must come after naval requirements, and not before. Major Hannay made a remark upon naval attacks, and a little point I would like to insist upon with regard to my idea of having naval attacks is that you should not know beforehand whether your opponents are to be battle-ships, cruisers, or torpedo-boats; nor should you know whether they are coming at eight o'clock on Wednesday morning or nine o'clock on Friday night. You should

be kept on the *qui vive* for two or three days, and not know until the moment comes for your enemy to appear who he is or what he is. I maintain that that would be the proper test for working coast defence, because it is the test applied in war. I disclaim any imputation that the present corps of submarine miners is not most efficient. I believe they are most efficient from what I have seen. I only wish I knew one-tenth as much about mining as many of the submarine Militia mining engineer officers do. But what I would suggest is that the mining should not be put in different hands to the gun defence. I think we should have a special body for coast defence, call it horse marines, or marine artillerymen, or semi-artillerymen, or sailors and artillerymen mixed. I think we should have a special force to do nothing else; they should be brought up to it right from the beginning, as a man is brought up in a cavalry regiment, or in the infantry, or on board ship. It should be a special art. It does not require a large number of people, but it requires very highly-trained *personnel*. That is my humble opinion, and from what I have seen I think it is incontestibly true that you do require it. It should be a special corps. Every coast-defence port should be under the command of a coast-defence general, who should have risen from the coast-defence service, and from nowhere else. I speak feelingly, because in a way I have only been lately introduced to coast defence; I spent the first nine years of my life in the other branch of the artillery. When I went into the coast-defence line, I had to begin where the boys who leave the academy had begun ten years before. I think it is not right that a man should have to begin a second education at that time of life, because he cannot be as efficient as he ought to be for the pay he gets. The remark of Captain May about a merchant-ship being safe under the guns of a fort is one that I quite agree with. It would more or less come under this scheme. There was a very able paper written by a naval officer, which I see gained an award both here and at the Chamber of Commerce, as to the protection of merchant shipping in war. By his scheme apparently we should not really need to find a large anchorage in many places, but only in one or two special places. As to the amount of armament, I had Portsmouth in my mind when I proposed thirteen or fourteen guns. I am nothing if not radical in my opinions, and I consider that with a sufficient installation of mine-fields and torpedoes of the Brennan type, thirteen or fourteen guns in the hands of properly trained men would be able to keep a fleet at bay until such time as our fleet came up. That is the crucial point of the question. Without a fleet on our side, we might just as well sit down and say we are beaten at once; there would be no further need for us to go on. With regard to the damage done to the "Inflexible" and the "Sultan," I must own that I cribbed that from Wilson's "Ironclads in Action." I believe his statements are generally accepted as true. The damage done to the "Sultan," or to the "Inflexible"—I do not know which for the moment—was a hole some 8 or 9 feet long on the water-line. Of course, as a mere landsman, I cannot say whether that would be dangerous.

Captain MAY:—I think it was my ship, the "Superb," which was alluded to, and as I looked at that hole half an hour after it was made, I may say that there was a bulkhead just inside the hole; it looked very bad from the outside.

Captain LUSHINGTON:—I am very glad to sit corrected in the matter.

The CHAIRMAN (Field-Marshal Sir Donald M. Stewart):—The subject of Captain Lushington's address is of a highly technical character, and I do not feel that I am in any way competent to give a very decided opinion regarding it. It is, however, a question of great importance in the circumstances of the British Empire, and I think we are indebted to Major Hannay and the other officers who have criticised the scheme in some detail. The harbour and coast defences of these islands are probably safe in the hands of the armed forces of the nation, backed up as they would be by a very numerous and

patriotic population; but I am afraid we are vulnerable in many of our possessions abroad. Some of our coaling stations are still in a very defenceless condition, and the efficient and economic defence of those positions requires very careful consideration at the hands of the responsible authorities. Vast sums have been spent in the past on fortifications which are admittedly held to be of little value in these days; and if Captain Lushington's ideas are as sound and adaptable as I conceive them to be, the time and trouble he has devoted to this address will not have been wasted. In my judgment, Captain Lushington deserves the warm thanks of the Institution and of this meeting for bringing into public notice one of the weak places in the armour of the country.

THE ETHICS OF WARFARE.

By W. V. HERBERT, Esq. (late Captain, Turkish Army.)

Wednesday, February 23rd, 1898.

Colonel LONSDALE A. HALE, late R.E., in the Chair.

The CHAIRMAN:—Gentlemen, last year Captain Herbert was kind enough to give us a lecture upon "The Psychology of the Battle-field," a lecture which was delivered to an audience comparatively small, but which has been read by many members of the Institution, and has been thoroughly appreciated. I am sure you will allow me on your behalf to welcome Captain Herbert back again to read to us another paper, the subject of which is "The Ethics of Warfare."

LECTURE.

SOME kindly critic pointed out to me that the title of my last lecture from this platform of honour and distinction was an incongruity and a misnomer. A heading, "The Psychology of the Battle-field"—so he says—implies a system of psychology relating to that particular phase of human existence, after the analogy of Kant's system of philosophy of the human reason; whereas what I presented was various phases of psychology with much kindred or half-related matter. Granted; I plead guilty. In the same manner, kindly do not look to-day for a complete system of the ethics of that particular condition of human existence called warfare. What I am about to present to you is a few ethical aspects of war, interwoven with much other matter appertaining or distantly related thereto. But I prefer the shorter title; brevity of head-line always charms an author. What I intended to present to you last year, and what I mean to tender to you to-day, are not systems of any "ology," however abstruse, complicated, and learned; but merely that which is instructive and (this is the chief point) suggestive of further research or reflection; sometimes, rarely, also that which is amusing. But in connection with amusing matter, I beg of you not to take any flash of humour of him, or of anyone else, however feeble, as a serious argument. It is very hurtful. I find it necessary to say this, because, incredible as it may seem, a very weak joke of mine in the "Defence of Plevna" has been taken as serious by more than one reviewer. In speaking of the vagrant dogs of Turkey, I wrote:—"They have an organisation of their own, which is quite as wonderful and a good deal more sensible than the British Constitution." Would you believe it? I have been seriously taken to task for that, not as a joke, but as sober sense!

I propose to divide this very modest contribution to a vast subject, which could be easily expanded into a many-volumed philosophy of warfare, into two components. I shall simply state the arguments *pro*

and the arguments *contra*, the ethical view of warfare, the view that war, being not only a concomitant of the life of the human race, but an advantageous and, to a certain extent, even ennobling one, like art or science, can and should, like art or science, be subjected to certain ethical rules; for the existence of an ethical aspect proved, the greater and more serious question enters of the wisdom, or otherwise, of obedience to an ethical code.

To begin with a crude definition: ethics is the science that treats of human actions as springing from mental affections; ethics is therefore a part of moral philosophy. In the commonly accepted sense, the ethical side of any question is that side which deals with the moral concomitants, and—to widen the definition by an easy logical step, as is commonly done—that side which deals with man's inherent and unconscious aspiration towards the beautiful or the perfect. It is in the nature of the human intellect to import an ethical side into most questions that affect the human race, even into disagreeable ones, to mention an instance:—the institution of marriage, which is hedged round with a perfect system of ethics. Then, if an ethical side to domestic warfare, why not to national war?—but that I do not advance as an argument, though it is perfectly pertinent. Now, the primary question which obstructs our argument is this: Is there an ethical side to warfare? is such a one possible? I do not mean possible to the professional philosopher, who will argue a soul into the stone, and beauty into the earthworm, but to the ordinary fight-your-daily-battle individual like you and me, and more particularly to those to whom warfare is, or has been, or might become, the means of buying bread and cheese.

Is there an ethical side to warfare? Is there an ethical side to crime?—I hear the peace-at-any-price politician ask. Here I maintain that war and crime are not parallels. War is not to the nation what crime is to the individual. The whole of known history disproves it. Crime is not a concomitant of human life, but is the consequence of an alienation of the human will. History proves that war is a necessity of human existence. Do not many nations, most nations, owe their very existence to war? Even Switzerland, the most peaceful of nations, has had her little wars, one only as recently as 1847 (the Gislikon revolt). One can well imagine human existence without crime, but not national existence without initial wars.

I have another proof that war and crime are not parallels in their relations to nation and individual. The conception of war has remained unaltered since man first learnt to make and carry arms, though its conduct has changed beyond the recognition of an old-world soldier. The conception of crime is purely arbitrary. We call to-day child-murder that which the Spartans considered a noble and unavoidable act. We call to-day highway robbery that which the bold bad baron of the Middle Ages claimed as his proud prerogative. Incest, great criminal immorality to-day, was simple filial duty among the ancient Persians. Stealing in primitive Greece was no offence, but being caught was a capital sin. These instances could be multiplied.

To sum up: crime is an accident, war a concomitant. We have therefore to seek for another parallel. One has suggested itself to wiser heads than mine ages ago, though, I think, it was only Dr. Engel, the statistician of the German Army, recently deceased, who has given it what I may call debatable shape. Dr. Engel, who in his great work, "The Book of Losses of the German Army," has computed the cost to a man and a horse, to a scratch, a cut, and a fever, of every feat that the German hosts have accomplished in 1870 and 1871, and who has therefore quoted, to military men of every nation, the actual price which, under given conditions, they will have to pay for any given exploit. He says:—"War is a disease in the life of a nation." In other words:—War is to the nation what illness is to the individual. Now, the ethics of disease, though probably unwritten, might justly be written and claim a legitimate place in our system of moral philosophy; and those whose profession it is to deal with disease have a complete and firmly established ethical code, according to the rules of which they—probably unconsciously, since those rules have been ingrained in them by their whole training—regulate their lives and their actions. By Engel's analogy, there is an ethical side to warfare, *quod erat demonstrandum*. But whether it be wise to conduct warfare according to an established ethical code, or whether, rather, the object of war—which is peace, paradoxical as it may sound—should not be accomplished as swiftly as possible by any means, however foul, is the question that I propose to argue. I shall not attempt to form a final conclusion, but shall leave it to my hearers to draw the balance.

One small side-issue obtrudes itself to the meditative mind. Disease is the means by which Nature, in her all-wise scheme, eliminates from the human race the weaklings, so as to maintain the race on a certain constant level of physical excellence and perfection, or comparative perfection. Nobody will deny that. Then, granted Engel's parallel, is not war the grand scheme of Nature by which degenerate, weak, or otherwise harmful States are eliminated from the concerted action of civilised nations, and assimilated to those who are strong, vital, and beneficial in their influences? Undoubtedly it is so; but to argue that for this reason war should be carried on in the murderous fashion of, say, the ancient Persians, or the Huns, or the earliest known invaders of Europe, is to argue that we should never cure disease, and let epidemics eat their fill unchecked, until, like the plagues of old, they exhaust the soil on which they have thriven, and die of sheer repletion. That is surely opposed to the very system of moral philosophy by which now the civilised part of the race governs its actions. To be sure, if we look at the race as one sentient unit, then it would almost seem we are acting unwisely in checking disease and preventing war; and H. G. Wells, the philosopher turned novelist (or is he a novelist turned philosopher?) predicts a sad and revolting picture of the human race when those grand safeguards of all-wise Nature shall have been conquered by the human intellect, when fevers are fables of the dim past, and colds but curious memories; when doctors have ceased to trouble and bacteria are

at rest; when man, having lost fear in his perfect security and a world-wide brotherhood, has also lost the capacity to fight, and the one kind of killing that necessarily remains (vide Wells' "Time Machine") is a thing not to be mentioned before polite ears, the mere allusion to which would fill our descendants with as much pious horror as Marryat's American spinster experienced by the mention of the legs of the piano. To be sure, security is weakness and struggle is strength all the world over, and through untold ages; but Nature, being all-powerful no less than all-wise, will, I hope, find some safeguard against deterioration when those provided now by disease and warfare shall have been abolished in the golden age that is to come. So far as we know from history, a nation that has lost the power to fight is doomed. Read of the behaviour of the Roman Empire towards the conquering Huns. How long did the Empire last? Within the next 200 years Italy was repeatedly invaded and Rome repeatedly subdued, and soon there was an end to the Roman Empire altogether—and an inglorious end.

To go back to Engel's argument, that war is to the life of a nation what disease is to the life of an individual. If this be so, then the analogy must in justice be applied to the remedies which are employed in either case. What then is the parallel of medicine as applied to the disease of nations? Medicine is either preventive or curative. The former we can safely leave out of our consideration. There is no preventive of war, granted the constitution of human beings to be as it is, for the simple reason—as mentioned before—that security means deterioration and death, and struggle means strength. If the human race is to remain as it is, or to progress in intellect and knowledge, then individuals must struggle and nations must fight. Those who advocate eternal peace and the application of arbitration in cases where history proves only the sword can speak the decisive, or what is more, the final word, advocate also the degradation of the human race to the level of pretty, soulless, two-legged animals, to whom knowledge is but a dim memory, to whom intellect is an unnecessary evil, to whom courage is an unknown quantity, because fear is an unknown quantity. In the interest of the human race, I hope that a universal and infallible preventive against war will never be discovered. The theory of evolution tends to prove that absolute security means intellectual death, and that struggle, with its inevitable result—the survival of the fittest—means strength, growth, progress, and happiness.

We have, therefore, to consider only curative medicine as applied to the disease of nations. In both components of the analogy—disease of the individual and disease of the nation—we have seen, if we compare the present with 2,000 years ago, not so much a marked improvement, but actually a radical change, which change, however, is due to the steady development (steady within historical times) of the idea that the individual is not a self-contained unit, but is merely part of the larger unit, nation, and in a wider sense, that the nation is not self-contained and supreme, but a component of the divine unit, humanity. This is the philosophy of altruism, of which our modern thinkers and teachers

speak so much. The pronounced altruistic tendency of modern times shows itself in increased municipal and national life, in the voluntary subservience of the individual to the commonweal, and in the now frequently acknowledged (even by parsons) religious dogma that the true service of God is the service of man.

To return to our analogy. We all know that up to comparatively recent times the diseases of the individual were often harshly treated. To mention but a few examples: In ancient Sparta weakly children were ruthlessly killed. In mediæval times the lepers were placed beyond the pale of humanity and made to shift for themselves, and epidemics were allowed to ravage and destroy almost without check or hindrance. It is not so many decades ago that those stricken with mental diseases were caged and exhibited like wild beasts. Now we bestow the greatest care upon the weakliest children, the greatest lamentations generally upon the death of the worst specimen, and to kill a deformed infant is murder —in ancient Sparta it was a godly and noble deed. We combat epidemics with the best powers of science and skill. We surround the mentally afflicted with care and comforts. The same applies to the remedies for the national disease—warfare—that is, to the means by which war is brought to its end—national recovery—*i.e.*, peace. We need not go back to antiquity, to the wholesale extirpation of tribes and nations, to the lot of captives of war, which was death, or, in the mildest form, lifelong slavery. Shall I remind you how William the Conqueror, in 1069, laid waste the country between Tees and Humber in so thorough a fashion that seventeen years later, in 1086, it was counted as "waste" in the great national survey? How in 1704 Marlborough burned and ravaged Bavaria, previous to his battle of Blenheim? How in 1758 the Russians acted in the districts of the Prussian monarchy which they had invaded, until the Great Frederick laid them low at Zorndorf? How Davout governed Hamburg in 1811? Shall I draw your attention—to come to quite recent times—to the conduct of the awful six years' war between Paraguay and the Allied States of South America, 1865 to 1870, the worst war in all modern history? To mention only one incident of the war: Of the Uruguayan contingent of 12,000 men scarcely a score survived. Now we have changed all that. Prisoners of war are prisoners during war only. Women and children and the helpless ones are not molested—at least, not officially. Open towns are not shelled. Neutral territory is respected. The flag of the Ambulance is sacred. Poisoned weapons are held in righteous abhorrence. In 1870 and '71 the Germans carried on the civil administration of the French provinces they had invaded a good deal better than Napoleon III.'s officials had ever done, and the administration of the law with an impartiality to which the hysterical French justices had been strangers. In 1877 the Russians protected, in the Bulgarian hamlets and villages, their enemies, the Turks, against the fanatical aggression of their allies, the Bulgarians, in a most praiseworthy and energetic fashion. Skobeleff records, through his mouthpiece, Kuropatkin, that when he occupied Adrianople

in January, 1878, his troops protected the mosques against sacrilege, and his sentries insisted on everyone removing his footgear when entering the sacred edifice. Fifty years before, August, 1829, the Russians had occupied the same city, had used the mosques as stables, and appropriated all that was valuable or even portable. Every war marks a step. In 1885 the Servians, when they invaded Bulgaria, paid conscientiously in good coin for every fowl or pig seized in farm-houses, for every glass of brandy drunk in village inns, and when the tables were turned and the Bulgarians invaded Servia, the Bulgarian soldiers and the Servian traders fraternised most cordially in the ale-houses of Pirot. To come to the latest European war—that between Turkey and Greece, in 1897—we have the testimony of the war correspondents that the behaviour of the Ottoman soldiery was quite exemplary. If things continue in this wise we shall perchance hear, in the next century, of every rifle-discharge being preceded by a conciliatory caution, and every bursted shell being followed by a humble apology.[1]

Seriously, we ourselves have seen, and are seeing, the gradual introduction of a purely ethical basis into warfare, not a basis of formulated rules, black upon white, arrived at at a Convention of Geneva or elsewhere, but a slow and certain spread of ideas, which is irresistible and will be irrevocable. It is to be hoped that nothing will be done, during the next European war, by the leaders of either side, to impede what Sorel, the Napoleonic historian, calls the "imperious march of events." I say advisedly "impede," not "obstruct" or "prevent," for you can no more prevent the rushing torrent of popular conception than you can dam the swell of the incoming tide. You may temporarily impede it, as, throughout history, rulers, leaders, and statesmen have found out, to their cost and bitter grief.

No disquisition on the ethics of warfare can be complete without an enumeration, however brief, of the advantages and disadvantages which generally attend the sport of kings. By the way, is it not passing strange that the disease of nations should be the sport of kings? I shall pass over cursorily such disadvantages as are visible to the naked eye and form the stock-in-trade of the blatant platform-orator, with his vulgar party cry of eternal peace, his shocking examples of gore by the gallon and corpses by the ton; I shall solicit permission to dwell at somewhat greater length on such features as require a little discernment and shrewd consideration.

First as to disadvantages. The material ones are obvious. There is the cost in property, and the cost in life. The former is in many cases—in all, I think, except where a nation be totally destroyed as a nation—balanced by the revival of trade which invariably follows the conclusion of peace. As to the latter, I rather suspect, from one or two cases that I have heard of, that the birth-rate is inclined to rise after a war, and that the loss of life is thus made good to the nation. I am no

[1] This was written before the outbreak of the Spanish-American War, the conduct of which has strikingly confirmed several of the author's arguments.

hand at statistics, and I have not the means to verify my belief; but I should be glad to hear that the Statistical Society, or some kindred body, will investigate, upon this point, all modern campaigns since, say, 1859. Another material feature is physical deterioration, owing to exposure, illness, etc. Place against this in the balance, however, the hardening of constitutions. War either makes or mars a man.

Of immaterial disadvantages the unavoidable and always present brutalisation of the populace, of the rabble in particular, is the most important and the most distressing. War is always followed by an increase of crime and immorality. Can it be wondered at? Man is essentially a fighting animal, and we need not the assurance of the philosopher Nietzschke, half madman, half genius, to believe that at one period of the evolution of the species man was a "roaming wild beast." Every war is in this respect a retrograde movement in the evolution of the species. War is also a wholesale manufacturer of malcontents, revolutionaries, and traitors—men who have fought well and received no reward; men who have sacrificed blood, limb, or health, and have been bought off with a pittance; men on whom discipline has laid a punishing hand, perhaps undeservedly; lifelong cripples or invalids, and so forth. The care of orphans and widows is also a prolific source of distress and discontent. But I can prove to you in a more striking manner the nature of war as a breeder of revolutionary tendencies. The murders, or attempted murders, of monarchs have often followed the conclusion of war, and, what is most strange and doubly demonstrative, of a successful war. It may be a coincidence, but it is certainly remarkable. Orsini's attempt upon Napoleon III. (1857) took place a year after the conclusion of the war with Russia. Lincoln was murdered (1865) when the final crushing of the Southern States had just been successfully accomplished. Sultan Abdul Afiz was assassinated in 1876 after Suleiman's first Montenegrin campaign. There were two attempts upon the life of the Emperor William I. soon after 1871. The Czar Alexander II. was murdered (1881) exactly three years after the peace of San Stefano. The remarkable abduction of Prince Alexander of Bulgaria (1885) took place nine months after his brilliant victory at Slivnitza. To go back to more remote periods, the Sultan Selim III. was dethroned and assassinated in 1807, after a successful campaign against the Servian rebels. The one attempt on the life of Frederick the Great took place in the winter following his most triumphant battle, Leuthen (1758). Turning to South America, I could offer at least four instances of presidents having been murdered after the successful issue of wars, but I am loth to worry you with details. I think I have proved my case. The idea has occurred to me too late to investigate also the Middle Ages and authenticated antiquity; if it were done I believe that full confirmation would be found of my theory, which is, briefly, that wars breed revolutionary tendencies, more particularly successful wars, and especially that tendency which finds its outlet in king-murder. A psychological explanation I cannot at present offer.

Another evil consequence of warfare is the creation of, or the main-

tenance of, international hatred or grudge, envy or enmity. The German soldiers in 1870 revenged far less the vacillations of a weak monarch trembling for his dynasty, or the irresponsible howling of the rabble in the capital, than the terrible tales of the invasions of the First Napoleon, sixty years before, which tradition had handed down to them. Russia and Turkey have faced each other in the field ten times. One war engenders another. History is full of such instances, and the present day exhibits at least six examples: France and Germany, Russia and Turkey, Bulgaria and Servia, Spain and Morocco, China and Japan, Chili and Peru.

At length we must turn to the advantages of war. They are not quite so much on the surface. The principal material advantage is the commercial and industrial prosperity, which follows peace. Of immaterial advantages, I need but mention the instillation and promotion of all the best and most manly qualities in Man—courage, perseverance, endurance, and hope. Courage and endurance are qualities inherent in most animals, perseverance in many animals, but hope is purely human. Man is an animal that hopes, and in the breast of a brave man only death can extinguish that divine spark. But the great benefit of war lies in its vitalising and fertilising power—the increase of national vitality, the fresh breath of national life, without which independent peoples cannot exist. None who have ever witnessed a great national rising will dispute the truth and the force of this assertion. Germany in 1870, Turkey in 1877, Chili in 1879, Bulgaria in 1885, Japan in 1894—these are our most modern instances of the most glorious aspect of warfare. Of these five, I witnessed, in my own person, three, the memory of which I count as a precious possession that shall never leave me. For if there is one feature that is divine in the history of mankind—which exhibits so much of what is mean and despicable—it is the rising of a roused people; if there is one sight that is heavenly on this miserable earth it is the sight of a nation in arms against an aggressor.

I think I have shown that the advantages and disadvantages of war balance each other pretty equally; sometimes, perchance, the former may outweigh the latter. Who can deny, for instance, that Germany is immeasurably better in every respect for the war of '70 and '71? The holocausts of Wörth and Gravelotte and Paris have made themselves paid a hundredfold. Who can deny that the memories of Waterloo, Solferino, Königgrätz, Sedan, Plevna, Slivnitza, Yalu, are, to the nations concerned, possessions—solid possessions—far beyond earthly price, and will remain so for decades, and perhaps centuries, to come? What keeps the Sick Man alive—not only alive, but strong and kicking—at the present day? The knowledge of Plevna. What has guided unfortunate Bulgaria through years of incredible corruption? The knowledge of Slivnitza.

I have proved, I think, firstly, that war is unavoidable; secondly, that it is not, in the long run, a disadvantage. Therefore it is needful, firstly, to regulate its conduct according to a firmly-established and universally-accepted code; secondly, it is desirable to conduct it in a

manner to minimise its disadvantages and bring out its advantages; never losing sight, however, of the great thirdly (which is also the chief point), that it is necessary to win your war, and that by the quickest means.

In a learned disquisition on the noble game of whist I once found as Rule No. 1, in extra thick capitals, "Make your tricks." Then came a long silence, and then followed, in small print, an enumeration of the various dodges with which skilful whist players are familiar. So in warfare. All said and done, "Win your war" is the most important, as it is the most primitive, maxim of the science of strategy—that is, drive your opponent into such a corner that he is content to have the terms of peace dictated to him. The rest comes a long way after.

I advocate, then, an ethical code of warfare—not so much a written code with clauses and complications, paragraphs and perplexities, however cunningly drawn up and solemnly agreed to, as a silent pledge of honour and faith, which can be brought about only—as I said before—by the education and guidance of popular opinion, and an irresistible spread of ideas amongst civilised nations.

Granted the desirability of this ethical code, can anyone maintain that the ruthless destruction of homesteads (except, of course, where the necessities of tactics demand their absence), the burning of villages, the poisoning of wells, the seizure of peaceful hostages, the contributions laid on unoffending citizens, can find a place in such a code? Is, or was, there not an established code of duelling, although thrusts that were not within the hard and fast lines of the code were often far more efficacious? Do we not conduct our criminal trials in accordance with a very severe code, from which, to mention only an instance, ethics demanded and obtained the banishment of torture? Let war be a noble rivalry of skill and science, courage and endurance, with a chivalrous abhorrence of foul means. I maintain that that commander must be a poor one who cannot conduct a war to its end, quickly and effectively, without the latter, when modern inventive genius has placed into his hands such long-range rifles and such quick-firing guns as we now possess, not to mention balloons, electricity, and many other triumphs of practical science. I confess readily that centuries ago, when fire-arms were in their infancy, and telegraphy and railways were unknown, the wholesale devastation of provinces and destruction of towns was occasionally demanded imperatively by the necessities of strategy. I have in my mind the Thirty Years' War, 1618-48. Then rifles were so heavy and cumbersome as to necessitate a prop; their loading was the labour of several minutes; their range was smaller than that of arrows, and their aim much more uncertain. Then preserved food was unknown; then electricity and steam were undiscovered slumbering giants. But to act now as did then Tilly and Wallenstein, and the Swedish Praying King, would be to give the lie direct to all the noble achievements of the mechanical geniuses of two and a half centuries.

To conclude, every nation pays a price for her existence, and a greater price for her greatness. By a conduct of war, such as laid down,

the material and moral cost of war would be lessened to both victor and defeated; the end would be the same; and the necessary struggle for existence—without which neither nations nor individuals can live—would, by a preponderance of the advantages which attend warfare, be transformed into something almost akin to a blessing in disguise.

Captain A. V. J. COWELL (Rifle Brigade):—I must apologise, Sir, for speaking, because I am apparently the youngest officer present, but there are three points I should like to touch upon. The first is, the lecturer in his synopsis says that the individual is not a unit, but only the component of a unit. Well, I humbly submit he is a unit. The other day I came back on board the "Avoca" with a certain number of men who were being sent home for recommittal; a very sad thing. They were bound to undergo imprisonment, and therefore had little to fear, and they therefore began to give trouble. I happened to be in command of the drafts, and went down and tried to apply a knowledge of human nature in order to keep them quiet. I pointed out that they were what were called prisoners in cells, and therefore a particular discipline was applicable to them, and that discipline was that if they gave trouble they would be flogged. Directly those men heard that in all probability they would be flogged they behaved themselves. The second point I wish to allude to is where the lecturer says that war should be a noble rivalry of skill and science, courage and endurance, with a chivalrous abhorrence of foul means. That is all very nice and pretty, but I submit, Sir, in these days when we have got to fight to win, that it will not take place. Nothing would strike me with less surprise any morning than to hear that our telegraphs had been cut by spies, and our bridges and all our means of communication from one part of England to the other blown up—that the first intimation of war we should have would be to hear that everything that had to do with our mobilisation had been destroyed. The third point I should like to draw attention to is the necessity of carefully preserving the health of the men, a duty which, in India at least, has been disgracefully neglected by the authorities, and which materially affects the morale of the men.

Lieut.-General Lord WILLIAM SEYMOUR:—There is only one point in the exceedingly able lecture we have just heard from Captain Herbert which I should like to ask his opinion upon. Discussion on this subject is exceedingly difficult, and I will therefore confine myself to one question relating to the great war between the Northern and Southern States of America from 1861 to 1864. I would ask Captain Herbert under what category he would place that war, a war very bloody and full of disease, I believe involving the loss of more men than ensued during the whole of the Peninsular War? Whether that war between two sections of a nation, however far separated, comes under the category that he has in several of these paragraphs dilated upon, namely, the probable fate of the race if the disease was stamped out, and the fate of the nation on the abolition of war? Also, whether after that war was finished you could look upon it that the material advantages and the revival of trade and industry was promoted by that war?

Lieut.-Colonel A. T. WINTLE, late R.A. (Bengal):—It will always be a moot question what should be done in war-time, and I do not think it is generally known that the Duke of Wellington, when he was General Wellesley, in India, ordered, in some instances, forts to be taken by escalade, and all the garrison, if desperate resistance was made, to be destroyed. That was in 1803. One of the Mahratta chiefs, writing to another, said:—"These English are a strange people, and their general a wonderful man. They came in here this morning, looked at the Pettah wall, walked over it, killed all the garrison, and returned to breakfast. Who can withstand them?" On the other hand, we hear of the Indians in Sonora, of whom it has been said:—"Their character is open, teachable,

and loyal to the white man, that they are fearless and capable of bearing every hardship, marching for weeks with a little bag of pinola (roasted flour) on their backs, making daily 50 or 60 miles. Of their courage many examples are given. In war their humane character shows itself in its full light, and prisoners are not killed, as in many other tribes, but mostly set free." The lecturer referred to the way war was carried on 2,000 years ago; but if you take the Greek accounts of what happened in India in those days, you will find there were many instances in which the Indians were not supposed to track their opponents, as you can read in the Laws of Mena, in which it is also said "There has been declared the blameless primæval law for military men." In considering war, I think we ought to consider whether there is any good in artillery—will it tend to any result? For instance, using machinery. Now there are undoubted signs of national decay going on in England, and to the Eastern nations this must have been apparent hundreds of years ago. Lord Bacon said that "In the youth of a State, arms do flourish; in the middle age of a State, learning; and then both together for a time; in the declining age of a State, mechanical arts and merchandise." Can that be applied to the art of war? I think it was Gray, the poet, who said:—

"Ill fares the land to hastening ills a prey,
Where wealth increases and men decay."

There is no doubt about the wealth increasing in this country, and men decaying too; that is proved by the decay of the teeth. Vico, in the sixteenth century said:—"A corrupted people is more cruel in its latest than in its earliest stage of civilisation. In the earlier stage it is caused by nature, in the latter by creed. The first was angry but generous; an enemy might defend himself or fly. The later stage, not less cool, is cowardly and perfidious; it is in pretending to save that it loves to strike." That seems to me the way that civilians carry out war. I will give you an instance. In South Africa we have had to contend with the Boers and Matabeles, pastoral races, and now we have sent our veterinary surgeons amongst them to inoculate their cattle, with the result that their cattle have died; and that is going on not only there, but in India, Burmah, and all sorts of places. One of the speakers has remarked about the health of the troops, and that, I consider, is the first question of the day. Napoleon said:—"Health is indispensable for war, and nothing can replace it." And Robert Jackson, a well-known surgeon in the Peninsular War, said:—"The possession of health gives power to the arm and courage to the heart, in confidence of power. The increased activity of the same quantity of physical force multiplies effect; but power and activity are incompatible with feeble health. A knowledge of the causes therefore which preserve, restore, and improve this condition, is of primary importance. It demands the first attention in the present times, for the British nation cannot expect to number soldier for soldier with the French Republic; but the British soldier decidedly possesses superior power in the power of action. This is an object of military study. It implies a correct knowledge of the physical, and even of the moral qualities of the soldier. But as the perfection of the physical qualities depends upon perfection of health, it demands a minute attention, for it is the cardinal hinge of effect in armies." Carlyle said that there was stupidity intellectual and stupidity moral, and I am inclined to think that there is disease physical and disease intellectual as well. The first speaker spoke of the enemies within our own gates. That seems to be going on everywhere, and I am afraid we shall find that sooner or later in India the whole nation will rise. That has been prophesied by military men years ago. Sir Charles Napier referred to it. It is because we are deliberately going to work to upset their old-established customs. We have interfered with their religion, and that is a thing that has not been considered sufficiently by our soldiers. In India the Hindoos take upon themselves the maintenance of Religion, and, roughly speaking, we may say the Chinese have taken upon themselves the maintenance of Reason, and we at the present time have got nothing else but

law to trust to. What possible chance have we in trusting to law, which twists about and is contradictory, when we go against two nations who are guided by Religion and Reason? I could say more, but I think I have said enough for the purpose.

Captain W. V. HERBERT, in reply, said :—Of course, a code of ethics in warfare could obtain only between nations of an equal, or tolerably equal, state of civilisation ; that stands to reason. There can be no code of ethics, for instance, between Zulus and English ; but there can be, I maintain, a code of ethics between the Chinese and Japanese. They are tolerably alike, except that the civilisation of China is very much older; the civilisation of Japan is a more mushroom growth. It may have grown more in twenty years than Chinese civilisation has grown in two thousand. I remember distinctly my first days in England. It was at the time, I think, of the Zulu War, and there was a most striking instance of the boys calling in the streets one day "Shocking murder of a whole British regiment"—it was at Insandlwana. A few weeks after it was "Grand slaughter of the Zulus!" That is the ethics of warfare between a civilised nation and a savage tribe. General Lord William Seymour spoke of the Civil War in America. I maintain that the Civil War of America was a necessary step in the imperious march of the events of history, as Sorel expresses himself; and I also maintain that the United States of America would be worse off at the present moment if there had been no civil war, for they would have been split up into two parts, undoubtedly ; and I think, equally undoubtedly, those two parts would have made war upon each other or been attacked simply from the outside, and possibly the weakest would have gone to the wall to an outside nation. I have no hesitation in saying that if the Civil War of America had not taken place, and there had been a split into two republics, the Southern would have suffered severely at the hands of Mexico. Mexico was waiting to avenge herself for the American-Mexican War, in which she had been badly treated, and no doubt the province of Texas would be Mexican in these days. There was a strange case affecting the question of prisoners of war in which I wondered what was the right thing to do. General Douay was taken prisoner at Sedan, and he gave his word of honour he would travel by himself as best he could to a certain place, Pont à Mousson, I think, and gave his word of honour to surrender himself there on a certain day. He wore the clothes of a Frenchman of the lower class, and he surrendered himself at Pont à Mousson at the railway station to a German officer. Whether it was that this German officer did not speak French sufficiently well,or that he was suffering from an overdose of the remedy against influenza, I do not know ; in any case, the German officer, seeing this ragged fellow, said, "Go to the Devil!" General Douay considered that he had complied with the terms of his parole and escaped, and was next heard of in Paris, where he took an active part in the defence of the city. Now, would the Germans have been justified, when they next captured him, in shooting him as a man who had broken his parole? Of course they did not, for they never captured him until after peace was made, and then all things were forgiven. But that is a question I should like to have answered. With regard to the seizure of hostages. It is recorded in a book which I have read—the diary of some German private soldier—that when the mayors of many French villages were required to surrender themselves as hostages, they said, "No, I am busy ; I have this, that, or the other thing to attend to ; but I have a dear mother-in-law, and you are quite welcome to seize her." Of course this kind of seizure of hostages is a small thing. What I was thinking of was the seizure of twenty or fifty peaceful inhabitants, as the Russians did in Turkey in 1877, and carting them more than a thousand miles away into the interior of Russia. That I think was a brutality. It is the same with regard to contributions. A contribution of 50,000 francs laid upon a village for a few shots fired is certainly better than exterminating the village ; but the regular contributions levied by the Germans shortly after Sedan, I forget of how

many millions, on a whole French province or district, which included Sedan, for some imaginary harm done to German shipping, was, I think, entirely unnecessary. The Germans got all they wanted at the end of the campaign. It may be said that I am a lover of war, but I cannot say that I am. What I maintain is that war is unavoidable, and therefore it is just as well to make it as little unpleasant as possible to the peaceful population that can have no concern with the war. We must also not forget that within the present century there have been a great many so-called diplomatic wars which no human being knew what they were being fought about. As you remarked in my last lecture, who on earth knew then or knows now the cause of the war of 1866? Nobody can tell. Perhaps the only man who can is Bismarck, and he has not enlightened us. Necessarily in such a war the population can have no concern, and that I take it is all the more reason why the population should be left alone. I think it was the third speaker, Colonel Wintle, who said something about the American Civil War. I would refer the speaker, or anybody else who likes to study the subject, to the war between Paraguay and the Allied States of South America. I think this war beats, in sheer horrors, in the expense of human life, and in brutality, any other war, including the American Civil War. I have told you already that the Uruguay contingent of some 12,000 men were swept off the face of the earth all but twenty people. The whole country of Paraguay, a country of the size of England, contained at the end of the war, I was informed by an Argentine soldier, less than 1,000 human beings, and a few dogs and cats. The whole country had been devastated, and Assuncion, the capital, of 20,000 inhabitants, was positively emptied.

The CHAIRMAN (Colonel Lonsdale Hale):—"The Ethics of Warfare" under the title of "The Usages of War" was the subject of enquiry by an International Conference held at Brussels in 1874 on the initiative of the then Emperor of Russia. At that conference each nation of Europe was represented by one or more distinguished soldier, and it was my good fortune to be there as assistant military secretary to the British representative, the late General Sir Alfred Horsford. The conference lasted six weeks, and every branch of the subject was gone into fully. The result showed that on general questions it was quite possible to arrive at some agreement, but that on details there was a decided tendency to become unpractical. As an instance, the conference agreed that if a prisoner attempted to escape and when challenged did not desist he might be fired at; but at the conference the question came up on three different occasions, the point at issue being whether the challenge should be given once or three times before the man was fired at. Common sense, however, carried the day in favour of a single challenge. Further, on the usages of war there was a marked difference of opinion between nations possessing large armies and those which had small armies only and relied on aid from the civilian population. It must further be remembered that the ethics of an army in the field is a reflector of the ethics of the nation to which it belongs, and therefore agreement is possible only between armies of nations whose national ethics is similar in character. As regards contributions levied in war on offending districts, and the taking of hostages, these would seem to be obvious and justifiable measures for self-protection; and with respect to poisoning wells, so long as this is done openly and the fact notified in some way to those who would use them, there seems to be nothing more to be said against this forbidden practice than against the permitted practice of depriving the enemy of good water supply by filling in wells or by cutting off the good water as the Germans did at Metz and Paris and reducing their enemy's water supply to the sewage-receiving Moselle and Seine. If it is permissible to starve one's enemy by denying him solid food, it seems equally permissible to starve him by denying him liquid food. We have to thank Captain Herbert for the interesting lecture to which we have listened this afternoon.

VON LÖBELL'S ANNUAL REPORTS ON THE CHANGES AND PROGRESS IN MILITARY MATTERS DURING 1897.

Précis by Major-General H. J. T. HILDYARD, C.B.,
Commanding 3rd Brigade, Aldershot.

THIS publication marks the twenty-fourth issue of these yearly summaries of all that is of import or interest in the military matters throughout the world. Whenever a rupture occurs between two Powers which results in war, whether it be between nations such as Greece and Turkey as in 1897, or between the United States of America and Spain as in the current year, it is to the pages of Von Löbell's reports that reference is made for trustworthy information regarding the armed forces that it will be in the power of each combatant to place and maintain in the field.

This year, in addition to the exhaustive information recorded, which has reference to European States, there are reports on the military capabilities of the United States of America, Mexico, the Transvaal, and the Orange Free State, and also a slight complement to the preceding year's report on Afghanistan.

In next year's issue it is intended to present a retrospect of the changes that have taken place in army matters in the several States since the first appearance of this publication. H. H.

REPORTS ON THE ARMED FORCES OF INDIVIDUAL STATES.

GERMANY.

Peace Strength :—

Arms.	Officers.	Other Ranks.	Troop and Draught Horses.	Horsed Guns.	Horsed Ammunition Wagons.
Infantry	12,208	357,000	—	—	—
Cavalry	2,356	64,496	63,928	—	—
Field Artillery	2,524	56,491	28,593	2542	91
Foot Artillery	810	21,650	—	—	—
Pioneers and Railway Troops	738	18,882	—	—	—
Train	308	7,560	4,250	—	—
Total	18,944	526,079	96,771	2542	91

Only trained men are included in the numbers contained in this table.

The peace strength of the several tactical units is the following:—

Infantry:—

	Officers.	Men.
86 battalions of regiments on the lower establishment	18	501
428 battalions of regiments on the medium establishment	18	573
93 battalions of regiments on the higher establishment	22	639
15 Jäger battalions on the lower establishment	22	614
4 Jäger battalions on the higher establishment	22	679

Cavalry:—

	Officers.	Men.	Horses.
170 squadrons of regiments on the lower establishment	4	133	133
235 squadrons of regiments on the medium establishment	4	138	137
60 squadrons of regiments on the higher establishment	4	146	140

Field Artillery:—

	Officers.	Men.	Horses.	Horsed Guns.
188 field batteries on the lower establishment	4	108	44	4
235 field batteries on the medium establishment	4	119	60	6
24 field batteries on the higher establishment	4	127	75	6 and 2 horsed ammunition wagons.

	Officers.	Men.	Horses.	Horsed Guns.
23 horse artillery batteries on the lower establishment	4	91	76	4
4 horse artillery batteries on the medium establishment	4	112	105	6
20 horse artillery batteries on the higher establishment	4	120	120	6 and 2 horsed ammunition wagons.

Particulars regarding the war strength of units are not published.

Organisation.—The re-organisation of the Army designed to take effect from the 1st April, 1897, has been carried out as planned. The whole of the new bodies of troops to be formed under the law of the 28th June, 1896, had in the course of the exercise year of 1897 the opportunity of proving their fitness for service in the same manner as the previously formed bodies. The arrangements for their quartering and establishment in the new garrisons have been finally settled.

The following are some of the more important items of increase in the establishments for 1897-98 :—

Officers.

Prussia and the contingents administered by her :—

Infantry.—16 brigade commanders, 33 regimental commanders, 244 second lieutenants, 33 superior surgeons, 33 surgeons.

Against this increase, there was a reduction of 67 battalion commanders, 2 captains (1st class), 2 first lieutenants, and 60 assistant surgeons.

Cavalry.—5 captains (1st class), 5 first lieutenants, 15 second lieutenants for the detachment of Mounted Jägers.

Transport detachments for horsing foot artillery have been newly formed at Glogau and at Thorn respectively, and have been attached to the 6th and 17th train battalions, which have each received an augmentation of a first lieutenant.

In Bavaria there has been the following increase in the number of officers :—

Infantry.—2 brigade commanders, 2 regimental commanders, 2 field officers, 36 second lieutenants, 4 superior surgeons, and 6 surgeons.

There has been a reduction of 10 battalion commanders and 10 assistant surgeons.

Cavalry.—1 captain (1st class), 1 first lieutenant, 3 second lieutenants.

The existing half detachment for horsing foot artillery has been increased to a complete detachment.

In Saxony there has been an increase to the infantry of 1 brigade commander, 3 regimental commanders, 22 second lieutenants, 3 superior surgeons, and 3 surgeons. There has been a corresponding decrease of 6 battalion commanders and 6 assistant surgeons.

In Wurtemberg the increase has been 2 regimental commanders, 14 second lieutenants, 2 superior surgeons, and 2 surgeons.

Formations.—Further progress has been made with the formation of the "Mounted Jäger detachments," which is to be the designation henceforth of the "Meldereiter detachments."

There are now six of these, belonging respectively to the Guard Corps, the 1st, 14th, 15th, 17th, and 2nd Bavarian Army Corps. Each of them is attached to a regiment of cavalry, and is of the strength of a squadron of the regiment to which it is attached. The *personnel* and horses are included in the establishment of the regiment concerned.

Distribution of the newly-formed Troops.

Prussia.

5th Guard Infantry Brigade Staff, 5th Foot Guards Regiment, and 5th Grenadier Guards Regiment, Spandau.

73rd Infantry Brigade Staff and 146th Regiment, Königsberg; 147th Regiment, Insterburg.

74th Infantry Brigade Staff and 148th Regiment, Stettin; 149th Regiment, Schneidemühl.

75th Infantry Brigade Staff and 1st Battalion 150th Regiment, Frankfurt a. d. O.; 2nd Battalion, Cüstrin; Staff and 1st Battalion 151st Regiment, Wittenberg; 2nd Battalion, Neu-Duppin.

76th Infantry Brigade Staff and 1st Battalion 152nd Regiment, Magdeburg; 2nd Battalion, Zerbst; 153rd Regiment, Altenburg.

77th Infantry Brigade Staff and 155th Regiment, Ostrovo; 154th Regiment, Jauer.

78th Infantry Brigade Staff and 156th and 157th Regiments, Brieg.

79th Infantry Brigade Staff and 158th Regiment, Paderborn; 159th Regiment, Mühlheim a. d. Ruhr.

80th Infantry Brigade Staff and 161st Regiment, Trier; Staff and 2nd Battalion 160th Regiment, Bonn; 1st Battalion, Diez.

81st Infantry Brigade Staff and 162nd Regiment, Lübeck; 163rd Regiment, Neumünster.

82nd Infantry Brigade Staff, Hanover; 164th Regiment, Hameln; Staff and 1st Battalion 165th Regiment, Goslar; 2nd Battalion, Brandenburg a.H.

83rd Infantry Brigade Staff and 166th Regiment, Hanau; 167th Regiment, Cassel.

84th Infantry Brigade Staff, Carlsruhe; 169th Regiment, Lahr; 170th Regiment, Offenburg.

85th Infantry Brigade Staff and 172nd Regiment, Strasburg i.E.; 171st Regiment, Bitsch.

86th Infantry Brigade Staff and 174th Regiment, Metz; 173rd Regiment, St. Avold.

87th Infantry Brigade Staff and 175th and 176th Regiments, Thorn.

Bavaria.

20th Infantry Regiment, Staff and 1st Battalion, Lindau; 2nd Battalion, Kempten; 3rd Battalion, Landsberg.

21st Infantry Regiment, Staff and 1st Battalion, Fürth; 2nd Battalion, Sulzbach; 3rd Battalion, Eichstädt.

22nd Infantry Regiment, Zweibrücken.

23rd Infantry Regiment, Landau; 2nd Battalion, Saargemünd.

9th Infantry Brigade, Landau.

10th Infantry Brigade, Metz.

11th Infantry Brigade, Neu-Ulm.

12th Infantry Brigade, Zweibrücken.

Saxony.

88th Infantry Brigade Staff and 177th Regiment, Dresden, 2nd Battalion, Königstein; 178th Regiment, Kamenz, 2nd Battalion, Zittau; 179th Regiment, Leipzig; 2nd Battalion, Leisnig.

Wurtemberg.

127th Infantry Regiment, Ulm; 180th Infantry Regiment, Tübingen; 2nd Battalion, Gmünd.

Consequent upon the conversion of the 4th battalions there were necessarily considerable modifications in the distribution of the previously existing formations.

Recruiting.—The total number of men liable to be taken for service including both the alphabetical lists of those becoming liable for the first time and the lists of those postponed in previous years was, in 1896, 1,575,488 men. This is an increase of 34,500 men on the number for the preceding year.

The distribution of the total available was as follows:—

Unaccounted for	51,022 men
Failed to appear	111,727 ,,
Become liable to service in previous years	383,287 ,,
Postponed	546,759 ,,
Excluded	1,267 ,,
Rejected	38,191 ,,
Allotted to the Landwehr (1st levy)	104,950 ,,
,, ,, Ersatz reserve	82,610 ,,
,, ,, Naval Ersatz reserve	910 ,,
[1]Enrolled	123,669 ,,
In excess of requirements	9,823 ,,
Enlisted voluntarily in the Army	20,507 ,,
,, ,, ,, Navy	726 ,,
	[1]1,575,448 men

BELGIUM.

The long deferred re-organisation of the Army, on the basis of obligatory personal service, has not as yet been effected.

In peace, as well as in war, the existing organisation provides for the formation of only 4 army divisions and 2 cavalry divisions, besides fortress troops.

In peace the infantry divisions, which have their headquarters at Ghent, Antwerp, Liège, and Brussels respectively, are composed each of 2 brigades. (The 3rd division has 3 brigades.)

The 7 brigades, forming part of the 1st, 2nd, and 3rd divisions, consist each of 2 line regiments, with 6 active and 4 reserve battalions.

The 2 brigades of the 4th division are composed 1 of 2 regiments of rifles, with 6 active and 4 reserve battalions; the other of 1 regiment each of rifles, grenadiers, and carabiniers, with together 10 active and 7 reserve battalions.

The 2 cavalry divisions are located at Brussels and Ghent respectively; the 1st division has 1 brigade detached to Namur, and the 2nd

[1] These numbers are as given in Von Löbell (p. 12); but there appears to be an error somewhere of 100,000 men. The number enrolled in 1895 was 227,212 men, and for 1896 should probably be 223,669 instead of the number noted above.

division has 1 at Mons. Each division has 2 brigades of 2 regiments, forming together 10 active and 2 depôt squadrons.

There are 2 brigades, the 1st and 2nd, of field artillery, each of 2 regiments of 3 divisions, located at Ghent and Brussels respectively. The 2nd and 4th regiments have in addition 1 horse artillery battery.

The 1st and 3rd regiments consist each of 8 active, 2 reserve, and 1 depôt batteries; the 2nd and 4th regiments have 7 active, 3 reserve, and 1 depôt field batteries, and 2 horse artillery batteries.

There are also 2 brigades, the 3rd and 4th, of fortress artillery, each composed of 2 regiments. Each regiment is formed of 14 active, 2 reserve batteries, and 1 depôt battery.

The engineer services are provided for by a regiment at Antwerp, composed of 3 active and 1 reserve battalions; of these, the staff and 2 companies of the 3rd battalion are at Liège and 2 companies at Namur.

There are further 7 companies and a depôt company of train, of which the headquarters are at Antwerp; the 3rd company is at the Beverloo camp, the 4th at Brussels, and the 7th at Brussels and Liège.

There are besides 4 companies of artillery and 5 of engineers for technical services.

On mobilisation 4 army divisions are formed, each consisting of 4 regiments of 12 battalions and a carabinier battalion; 2 squadrons, 8 field batteries (the 2nd and 3rd have only 7), 1 company of engineers and 1 train company, besides 4 ammunition columns, 2 supply columns, and auxiliary services.

The infantry has then to be expanded from its existing strength of 27,738 men by the addition of some 80,455 men drawn from 13 classes of the reserve; the cavalry receives 3,463 men, the artillery 18,035 men, and other arms and branches of the Service in like proportion. In all a strength of about 3,515 officers and 140,000 men is anticipated.

If the several units be compared in a similar manner, it seems that the active battalion of the line will have 409 men on a peace establishment, whereas its war strength is 1,006 men. The reserve battalions having in peace a weak cadre of 27 men, will have to be increased to 806 men.

The active squadron has in peace 140 men and 130 horses; in war it has 160 men and 170 horses.

The artillery are even more unfavourably situated. The horse battery has in peace 114 men and 107 horses; in war 180 men and 216 horses. The field battery has in peace 92 men and 61 horses; in war 166 men and 154 horses. The reserve field battery, with a cadre in peace of 18 men and 31 horses, has in war the same establishment as the active field battery. The active battery of fortress artillery has 68 men; for war it is raised to an establishment of 183 men.

FRANCE.

The total peace establishment of the Army for 1897 was fixed at 29,000 officers and 573,720 other ranks; the actual net strength was 28,066 officers and 529,800 men. In these numbers are included, how-

ever, 732 officers and 24,869 men of the Gendarmerie and Republican Guard.

The estimates for 1898 were framed to provide for an increase of 151 officers and 12,542 men.

The most material changes effected during 1897 were the formation, in accordance with the law of the 4th of March, of 4th battalions in the 145 sub-divisional infantry regiments, and the adoption of a new system for the field artillery.

The creation of the 145 new battalions that has been authorised is to be proceeded with gradually, according to the means and recruits available.

This new formation of the French infantry is a very material increase to the armed forces that will be made available in the first line; and it has this further advantage, that the new formations to be formed from the cadres complémentaires will no longer have to be improvised upon mobilisation. A period of some years will be required before this measure is completed; but when it is, France will have at her disposal 145 more active peace battalions than she has now, which represents the infantry for six army corps.

The new battalions are to have an establishment of:—

1 battalion commander.
1 captain-adjutant major.
4 captains.
8 lieutenants or sub-lieutenants.
4 adjutants.
4 sergeant-majors.
16 sergeants.
4 clerks.
32 corporals.

The number of privates has not been indicated.

According to the French military press, the formation of most of the 4th battalions of the regiments of the 6th and 15th Corps was carried out in the autumn of 1897. In each case from 2 to 4 companies were formed, each with a strength of 3 officers, 11 non-commissioned officers, and 100 men. During 1898 the formation of the 4th battalions in the 1st and 7th Corps is to be effected.

When the measure has been carried out in all the army corps, the French infantry will have an increased peace establishment of about 50,000 men. The necessary number of recruits is available, for in the autumn of 1897 the number enrolled exceeded by 20,000 that of the preceding year.

It seems probable that eventually these new battalions may be utilised for the formation of larger bodies of troops.

The distribution of the battalions has only been fixed in the following instances:—

15th Army Corps Region:—

4th Battalion	55th	Regiment	- - Arles	29th Infantry Division.
,,	112th	,,	- - Nice	
,,	111th	,,	- - Toulon	
,,	141st	,,	- Marseilles	
,,	40th	,,	- - Nimes	30th Infantry Division.
,,	3rd	,,	- Pont St. Esprit	
,,	61st	,,	- Marseilles	
,,	58th	,,	- - Uzès	
,,	163rd	,,	The Island of Corsica.	

6th Army Corps Region:—

4th Battalion	94th	Regiment	- - Verdun	12th Infantry Division.
,,	106th	,,	Verdun—formed at Châlons	
,,	91st	,,	,,	

Artillery.—By a decree of the 15th January, the 8th Regiment is to consist in future of 12 field and 2 horse batteries (an increase of 1 field battery), and the 9th Regiment of 9 field and 2 horse batteries (a decrease of 1 field battery).

At the same time 2 batteries of foot artillery were transferred from the 7th to the 16th Battalion.

On the 17th August, 4 new batteries of foot artillery were formed, and attached 1 each to the 7th and 16th Battalions, and the other 2 to the 11th Battalion.

The following battalions of foot artillery now vary from the normal establishment of 6 batteries:—

The	6th	Battalion	has 9	batteries
	7th	,,	,, 5	,,
	11th	,,	,, 8	,,
	16th	,,	,, 9	,,

Engineers.—The formation of a 20th Engineer Battalion for the new 20th Army Corps about to be formed, and of a Military Telegraph Corps of 6 companies is imminent.

Recruiting.—In 1896 the young men of the 1895 class were called up. These numbered 331,368, being 5,841 less than the preceding year. There were also men postponed in 1894—46,627—and in 1893, 22,018.

After deducting from the 1895 class those postponed and allotted to auxiliary services, there remained available 230,700 recruits for the Army. Of these, 69,438 were enrolled for an active service of one year, and 161,262 for that of two to three years.

The number of recruits allotted to the infantry was 7,000 more than it was in the preceding year.

In the course of the year 16,919 men joined the home army and 5,595 the troops in Algeria by voluntary engagement.

In Algeria the number of young men who became available for obligatory service was 5,341, of whom 3,078 were enrolled.

Composition of the Army by Annual Classes.—From the 1st November, 1897, to the 31st October, 1898, there belong:—

To the Active Army, the Annual Classes of 1896, 1895, and 1894.
„ Reserve of the Army „ „ 1893 to 1884.
„ Territorial Army „ „ 1883 to 1878.
„ Reserve of the Territorial Army „ 1877 to 1872.

It appears from a debate that took place in the Chamber, that in the event of mobilisation the number of available horses fit for the requirements of service would be short by from 20,000 to 30,000.

It has been stated by the Press that the total requirements in horses on mobilisation would amount to 483,045, and the impossibility of obtaining the number of properly qualified horses required to augment the peace establishment has been pointed out.

Officers.—Since the establishment of the 15th February, 1896, there has been an increase of 289 infantry and 109 cavalry officers. There has been a reduction of 6 officers in the Artillery.

Development of Strategic Lines of Railway.—A publication, entitled "Les Chemins de fer et la Mobilisation," appeared in the summer of 1897, which contains remarkable and generally accurate information regarding the capabilities of the French railways for the purposes of mobilisation and war.

This part of the national defences has been organised with great care and technical knowledge, so that the utmost possible appears to have been done. In the period between 1881 and 1894, the increase in the total length of the available lines has been from 25,420 to 35,907 kilometres. Seven lines, double throughout and with steel rails, now lead to the eastern frontier.

The railway companies will be in a position, before the commencement of mobilisation, to place 9,959 engines and 293,465 carriages (these numbers will have been still further increased during the last few years) at the disposal of the Minister of War. One hundred and six trains are required for the conveyance of an army corps, 29 trains for an infantry division of the usual composition, viz.:—12 battalions, 1 squadron, 6 batteries, with trains and columns. It is laid down that for the transport of the whole of the forces to the frontier, 2,014 locomotives and 64,488 wagons would be required; so there is a very material surplus in rolling-stock beyond the amount necessary.

The writer comes finally to the conclusion, that the railways are in a position to convey by the evening of the fifth mobilisation day 5,796,000 men, a number considerably greater than France could produce in the event of war.

ITALY.

There are two establishments fixed for the Army in peace: the one lays down numbers of officers, men, and horses of the several arms that may not be exceeded; the other indicates the average strength of these arms, or, in other words, the anticipated rationed strength.

For all arms the following were the establishments for 1897-98:—

	Maximum.	Average.
Officers - - - - -	13,818	13,392
Men - - - - -	264,448	209,337
Officers' horses - - -	10,123	9,796
Troop horses - - -	38,434	36,182

In war the twelve army corps of the Standing Army are each composed of 2 infantry divisions of 2 brigades (with 1 bersaglieri regiment), making 9 regiments = 27 battalions infantry; 1 regiment cavalry = 6 squadrons; 2 regiments, each of 2 divisions field artillery = 16 batteries; 2 companies of engineers; 1 company for supply service; 1 sanitary company.

The Field Army is formed of the Standing Army and the Mobile Militia, which consists of all arms with the exception of cavalry.

The Standing Army consists of 14,397 officers, 511,788 other ranks, 94,201 public horses, 1,242 guns, and 16,248 horsed vehicles (including guns).

The Mobile Militia has 5,298 officers, 207,630 other ranks, 17,073 public horses, 366 horsed guns, and 3,450 horsed vehicles.

The special Sardinian Militia and the Territorial Militia are in addition to the above.

The latest information (June, 1896) in regard to the total numbers borne on the lists of the several categories gives the following results as regards men:—

	With the Colours.	On Furlough.	Total.	Percentage.
Standing Army -	216,723	546,771	763,494	22·99
Mobile Militia -	—	478,348	478,348	14·38
Territorial Militia	—	2,083,924	2,083,924	62·63
Total -	216,723	3,109,043	3,325,766	100·00

Of the men of Territorial Militia, 67 per cent. (3rd category) are not trained at all; a further considerable portion (2nd category) even of the Mobile Militia are only very little trained.

The situation is even worse as regards officers. In 1896 there were serving in the Active Army 14,414 officers, and there were allotted to that army 6,294 ersatz officers—an increase of 258 over the previous year. For the Mobile Militia there were 4,476 ersatz officers available, an increase of 167 over the previous year.

There were on the same date 5,496 officers belonging to the Territorial Militia, being a decrease of 140 as compared with the previous year. There were further 6,807 officers borne on the general list *à disposition*, which includes retired officers; and, looking to the want of a proper control, it seems doubtful whether all those kept on the list are really still effective for service.

The Re-organisation Law of 1897.—This law gave legal sanction to many changes that had already been effected. The following is a brief summary of its bearing upon the several portions of the armed forces.

1. *Standing Army.*—One district command has been added, making 88 in all. 98 permanent district companies have been abolished and distributed amongst the infantry. The number of remount depôts has been increased from 4 to 6.

The changes that had been already effected before 1897 are the conversion of 6 field artillery batteries into a similar number of mountain batteries. The 6 batteries of field artillery now deficient are to be supplied on mobilisation by the Mobile Militia. Further, the separation of the coast and fortress artillery in independent battalions; the formation of a 5th engineer regiment; the independence of the railway battalion, the strength of which has been increased from 4 to 6 companies.

2. *Mobile Militia.*—To consist of 51 infantry regiments of the line, 20 battalions of bersaglieri (an increase of 1), 38 Alpine companies (an increase of 16), 31 squadrons (to replace the 25 reserve squadrons previously existing), 63 field artillery batteries (an increase of 9), 15 mountain artillery batteries (an increase of six), 78 coast and fortress artillery companies (an increase of 34), 24 artillery train companies (an increase of 9), 54 engineer companies, and 4 engineer train companies. On the other hand, 13 sanitary companies and 13 supply companies are done away with, as is also the case in the Territorial Militia, for, in the event of war, the whole of the sanitary and supply *personnel* is to be allotted to the army of the first line.

3. *Territorial Militia.* — The strength of this is fixed at 324 battalions of infantry (an increase of 4), 22 Alpine battalions (75 companies), 100 fortress artillery companies, and 30 engineer companies.

The redistribution of military districts, provided for by the same law, is as follows, the first place named after the number of each division is the staff quarters of the division:—

1st Army Corps (1st division): Turin, Pinerolo; (2nd division): Novara, Vercelli, Ivrea.

2nd Army Corps (3rd division): Alessandria, Casale, Voghera, Pavia; (4th division): Cuneo, Mondovi.

3rd Army Corps (5th division): Milan, Monza, Como, Lodi, Varese; (6th division): Brescia, Luco, Bergamo.

4th Army Corps (7th division): Placentia, Cremona, Parma, Reggio, Emilia; (8th division): Genoa, Savona.

5th Army Corps (9th division): Verona, Vicenza, Mantua; (10th division): Padua, Rovigo, Venice, Belluno, Treviso, Udine.

6th Army Corps (11th division): Bologna, Madena, Ferrara; (12th division): Ravenna, Farli.

7th Army Corps (13th division): Ancana, Pesaro, Maserato; (14th division): Chieti, Teramo, Ascoli Piceno, Aquila, Salmona, Campobasso, Foggia.

8th Army Corps (15th division): Florence, Arezzo, Pistoia; (16th division): Leghorn, Sienne, Lucca, Massa.

9th Army Corps (17th division): Rome, Frosinone; (18th division): Peruggia, Spoleto, Orvieto; (25th division, Sardinia): Cagliari, Sassari.

10th Army Corps (19th division): Naples, Caserta, Gaëta, Benevento; (20th division): Salerno, Campagna, Avellipo, Nola.

11th Army Corps (21st division): Bari, Barletta, Lecce, Tarento, Potenza; (22nd division): Catanzaro, Reggio, Calabria, Cosenza, Castrovillari.

12th Army Corps (23rd division): Palermo, Girgenti, Trapani, Cefalu; (24th division): Messina, Syracuse, Sattanisetta, Catania.

Artillery.—The territorial distribution is different in the case of the artillery, the superior commands of which are grouped in eight centres in the following manner:—

Place of the Artillery Command.	Army Corps.	Field Artillery Regiments.	Coast Artillery Battalions.	Fortress Artillery Battalions.	Artillery Directions.
Turin	1	5 & 17 Mountain Regt.	—	6 & 7	Turin.
Alessandria ...	2	9, 11, & 23	—	4 & 5	Alessandria.
Placentia ...	4	4, 15, & 21	10 & 11	3	Placentia, Genoa.
Verona ...	3 & 5	6, 8, 16, 20, & Horse Regt.	1	1 & 2	Mantua, Verona, Venice.
Bologna ...	6 & 7	3, 7, 14, & 19	7 & 8	8	Spezzia.
Rome	8 & 9	1, 2, 13, & 18	2 & 9	9 & 10	Rome, Ancona, Maddalena.
Naples ...	10	10, 12, & 24	6	11	Naples.
Messina ...	11 & 12	22	3, 4 & 5	—	Tarento, Messina.

Engineers.—The distribution of this arm is the following:—

Engineer Command.	Army Corps.	Directions.	Sub-Directions.
Turin ...	1 & 2	Turin, Alessandria, Milan	Novara, Cuneo.
Venice ...	3 & 5	Verona, Venice	Brescia, Padua.
Genoa ...	4	Placentia, Genoa... ...	— —
Spezzia ...	6 & 8	Bologna, Florence, Spezzia	Ravenna, Leghorn.
Rome ...	7 & 9	Ancona, Rome	Chieti, Perugia, Cagliari.
Naples ...	10, 11 & 12	Naples, Bari, Palermo ...	Salerno, Catanzaro, Tarento, Messina.

Infantry Organisation.—On the 1st January, 1898, every regiment of infantry and bersaglieri had to form a depôt. After the changes of garrison had been carried out in the February and March following, 22 infantry and 5 bersaglieri regiments had their depôts (including the stores of clothing and arms for mobilisation) away from the regiment, though most of them were in its neighbourhood.

Training.—Having regard to the small proportion of men, not belonging to the Active Army, called up for training in 1896, the number

was exceptionally large in 1897. More than 100,000 men underwent a course of training, the duration of which varied from fifteen to thirty days. The object of calling out so many men was not solely to freshen up their military training, but also with a view to strengthening the troops participating in the manœuvres, to forming a separate division of Mobile Militia for the great manœuvres, to affording a trial of the coast-defence service, and to making as many men as possible familiar with the 6·5-millimetre rifle.

The men who were trained for fifteen days belonged to the Territorial Militia of seven districts of the 8th Army Corps and were those destined to form coast-defence companies. Those trained for twenty days and twenty-five days respectively belonged in part to men of the reserve of the Standing Army, part to the Mobile Militia and the rest to the Territorial Militia.

The only men up for the full period of thirty days (in some cases thirty-five days) were the non-commissioned officers in each case, and the men belonging to the reserve of the Alpine troops (1872 class).

MEXICO.

The promulgation of the law of 1897, for the organisation of the armed forces, has brought into unusual prominence the military capabilities of this State.

In peace the Standing Army consists of the units specified below; until mobilisation, formed bodies larger than battalions and regiments are not constituted:—28 battalions of infantry of 4 companies, 12 cadre battalions of infantry of 2 companies, 2 regional infantry battalions of 2 companies, 7 regional infantry companies, 1 battalion of pioneers of 4 companies, 1 battalion of invalids, 14 cavalry regiments of 4 squadrons, 8 cavalry cadre regiments of 2 squadrons, 2 regional squadrons, 1 squadron mounted police, 4 battalions of field artillery of 4 batteries, 1 battalion of machine-gun artillery of 2 companies, 1 park squadron, 1 train squadron.

The peace establishment is :—

	Officers.	Non-com. Officers.	Men.	Horses and mules.
Infantry - - -	1,286	3,826	16,651	1,363
Cavalry - - -	663	1,849	5,989	9,257
Artillery - - -	228	722	1,867	2,205
Engineers - -	55	150	585	234

In war the strength is :—

	Officers.	Other ranks.
Infantry - - - - - -	1,600	32,000
Cavalry - - - - - -	900	8,000
Artillery - - - - - -	400	3,500
Engineers - - - - -	100	1,000
Reserves of all arms - - - -	600	100,000
Total - - - - -	3,600	144,500

To these numbers will have to be added the auxiliary forces which the several States of the federation are able to dispose of. The new organisation of these is in course of preparation, and will later on be of the greatest use to the Army; the strength likely to be made available cannot as yet be estimated.

The reserves consist of the National Guards of the several States (there are twenty-seven), and of the one federated district associated with them. Such permanent troops as exist in the several States not belonging to the National Guard are to form the first quota towards completing the Army on mobilisation.

Strength of tactical units in peace:—

	Officers.	Non-com. Officers.	Men.	Horses and mules.
Infantry battalion - -	39	123	534	42
Cavalry squadron - -	8	19	88	116
Artillery field battery (6 guns) - - -	8	32	82	165
Artillery mountain battery (6 guns) - - -	8	38	82	86

Except that the infantry battalion has in war 822 men and batteries have 110 men each and about 30 more horses, the establishments in peace and war are for all practical purposes identical.

The 12 cadre battalions have 11 officers, and each of their 2 companies has 71 men.

The 2 regional battalions garrison Yucatan and Tampico, and are named after those places. Their strength is each 12 officers, 30 non-commissioned officers, 12 musicians, 147 privates.

The 7 regional companies are distributed 1 each in Campeche, Tabasco, Acapulco, Coatzacoalcos, Salina Cruz, and 2 in North California. They bear the names of their garrisons, and vary in their establishment from 136 to 86 men, including non-commissioned officers. Together they number 38 officers, 164 non-commissioned officers, 28 musicians, and 648 privates.

The squadron in the cavalry cadre regiments consists of 4 officers, 14 non-commissioned officers, 3 trumpeters, and 54 troopers, with 4 officers, and 71 troop horses.

The 3 regional squadrons are located in the districts of Sonora, Chihuahua, and North California respectively, and bear the names of these places. Each of these squadrons has 6 officers, 1 telegraph officer with two assistants, 17 non-commissioned officers, 3 trumpeters, 56 troopers, and 3 train soldiers; also 7 officers' horses, 78 troop horses, and 8 mules.

The mounted military police consists of 1 squadron, numbering 8 officers, 20 non-commissioned officers, 4 trumpeters, 85 men, 2 drivers; also 8 officers' and 111 troop horses, and 10 mules.

The 4 battalions of field artillery have together 104 guns. Each battalion is formed, in peace, of 2 field and 2 mountain batteries, each of

6 guns and 2 horse artillery guns. In case it should seem desirable, the 8 horse artillery guns can be formed into a battery and attached to the cavalry.

The machine-gun artillery consists of 2 companies, each consisting of 6 officers, 29 non-commissioned officers, 4 musicians, 36 gunners, 41 drivers; with 12 machine guns, 6 officers' horses, 15 troop horses, and 88 mules.

Mobilisation.—The commanders and staff are not appointed beforehand. Brigades of cavalry and infantry would be constituted of 3 regiments or battalions each. Divisions would consist of 3 brigades; army corps of 3 divisions; and an army command of from 2 to 3 army corps. Each staff, from the brigade upwards receives a cavalry escort of from 10 to 18, or 27 troopers.

On mobilisation the 28 infantry battalions are raised to war strength by the addition of 42 men per company.

The 12 cadre battalions are raised to the normal peace strength.

In the cavalry of the line 8 men and 8 horses are added to each regiment; in the cadre regiments 10 men.

Each field and mountain battery is augmented to 8 guns; the machine-gun artillery to 32 machine guns.

MONTENEGRO.

The following new territorial distribution forms the framework for formations in war :—

1st brigade district.	Staff Quarters	Niegusch	-	-	7	battalions.
2nd „	„ „	Vir	-	-	7	„
3rd „	„ „	Piperi	-	-	7	„
4th „	„ „	Goransko	-	-	9	„
5th „	„ „	Podgoritza	Christian	-	6	„
			Mohammedan		1	battalion.
6th „	„ „	Kolaschin	-	-	6	battalions.
7th „	„ „	Gradschani	Christian	-	2	„
			Mohammedan		2	„
8th „	„ „	Andrievitscha	-	-	5	„
		Total	-		8 brigades, 52 battalions.	

The formation of the higher units is not definitely fixed beforehand. Their constitution would be based on the principle of 2 battalions forming a brigade, each of which would have attached to it 4 mountain and 2 field guns.

The number of men liable for service has been estimated variously at 37,250 and 43,500, of whom from 2,500 to 3,500 are Mohammedans. The instructional cadre battalion, established in 1896, affords a 4 months' training to 1,300 men yearly. These are selected by lot from those liable to service who are 25 years of age. Up to the present time 2,300 men have been trained in this manner.

AUSTRIA-HUNGARY.

The year 1897 did not witness any far-reaching changes in the organisation of the Army.

In April a third inspector-general of troops was nominated in the person of the former commander of the 3rd Corps.

In May a 4th Landwehr cavalry brigade command was established and located at Debreczin.

In October, a 16th company was added to each of the 4 Bosnia-Herzegovina infantry regiments; this completes the formation of these regiments.

Cavalry.—New regulations were issued respecting the organisation of the regular cavalry, in which the changes introduced during recent years were embodied. The regular cavalry consists of 42 regiments, of which 15 are Dragoons, 16 Hussars, and 11 Lancers; these are named after the colonel-in-chief of the regiment and have also a consecutive number.

The regiments are as a rule located territorially, and are grouped in brigades, and also in part in divisions, of which five are formed.

In peace each regiment is divided into the regimental staff and 2 divisions, each of 3 field squadrons and 1 ersatz squadron. There are also 1 pioneer sub-division and 1 telegraph patrol with each regiment. The regiment is commanded by a colonel, the 2 divisions by a lieutenant-colonel and major respectively. The 6 field squadrons have 30 officers, 871 mounted men, and 126 dismounted men of other ranks.

The ersatz cadre consists of 4 officers and 23 men, 6 of whom are mounted. The total of the entire regiment is 45 officers and officials, 1,043 other ranks, and 973 horses.

As compared with the previous establishment, this shows an increase of 2 subaltern officers, 2 telegraphists (mounted sub-division leaders), and 2 mounted sanitary assistants. The number of non-commissioned officers is increased by 25 corporals and 26 patrol leaders, an equivalent reduction being made in the number of troopers.

The men and their horses belonging to the pioneer sub-division are on the establishment of the field squadrons in peace; in war a pack-horse is added for the transport of explosives.

The telegraph patrol consists of 2 sub-division leaders and 2 orderlies; its duties are to transmit reports and orders by telegraph.

The Hungarian Landwehr cavalry has also been given a revised constitution, which includes the changes carried out in 1896, by the creation of 2 patrol-leaders per squadron, the addition of 2 sanitary assistants to the regimental staff, and the increase from 5 to 8 of the squadron pioneers.

This cavalry consists of 10 Hussar regiments, having each a regimental staff, 2 divisions (*en cadre*), and 1 ersatz cadre; during the autumn exercises and on mobilisation 1 pioneer sub-division and 1 telegraph patrol are formed.

The regiments are grouped in brigades, and are as a rule located in the areas in which they would be completed.

The establishment of a squadron, in peace, is 4 officers, 65 men, and 30 horses. From October to the end of January they have in addition 10 remounts, and from February to September 24 remounts. The permanent establishment of the whole regiment is 39 officers, 420 men, and 259 horses; in addition, from October to January there are 60 remounts, and from February to September 145.

ROUMANIA.

A project for the alteration of the organic law as regards the terms of service was presented. Its object is to extend the liability to active service, while lengthening the periods in the reserve and militia. The numerous cases in which hitherto exemption from active service was permissible have, with few exceptions, been done away with, and instead of exemption only a diminution of permanent service during the first year is to be allowed.

The period of active service with the colours for the permanent troops of the line is fixed at 3 years, for the cavalry serving periodically at 4 years, and for the infantry 5 years.

The term of service in the reserve, which has hitherto lasted until the completion of the 30th year of age, has been extended to the 36th year inclusive. Similarly liability to serve in the militia is prolonged from the 36th year until the end of the 45th year of age.

RUSSIA.

	Peace Strength in Europe and the Caucasus.	*Elsewhere.*
Infantry - - -	497,000 men.	66,000 men.
Cavalry - - -	109,000 ,,	10,000 ,,
Artillery - - -	107,000 ,,	8,000 ,,
Engineers - - -	21,000 ,,	3,000 ,,
Administration - -	34,000 ,,	5,000 ,,
Total - - -	768,000 ,,	92,000 ,,

Together 36,000 officers, and in round numbers 860,000 men, not including the frontier guards, convoy escorts, military police, and fleet; but including Cossacks, Finns, native Caucasian troops and militia.

War Establishment:—

Field troops.

Infantry -	973 battalions	
Cavalry -	716 squadrons -	Including Cossacks of the 1st category.
Artillery -	509 batteries -	
Engineers -	35 battalions, 8 half-battalions	
Train -	22 to 24 battalions, each divisible into 5 war transport trains	= 27,400 officers, 1,269,000 men.

Reserve troops.

Infantry -	649 battalions				
Cavalry -	580 sotnias - -	{ Cossacks of the 2nd and 3rd categories			
Artillery -	124 batteries and 18 Cossack batteries				
Engineers -	5 battalions	=	14,300	officers,	789,000 men.

Fortress troops.

Infantry -	155 battalions				
Artillery -	57 battalions, 10 companies, 1 detachment				
Engineers -	5 battalions	=	4,000	officers,	262,000 men.

Ersatz troops.

Infantry -	4,400 officers,	270,000 men			
Cavalry -	800 ,,	40,000 ,,			
Artillery -	600 ,,	30,000 ,,			
Engineers	100 ,,	6,000 ,,	=5,900	officers,	346,000 men.

Reichswehr.

Infantry -	9,500 officers,	686,000 men			
Cavalry -	350 ,,	22,000 ,,			
Artillery -	450 ,,	28,000 ,,			
Engineers	100 ,,	4,000 ,,	=10,400	officers,	740,000 men.
Frontier Guards - - - -			1,000	,,	34,000 ,,
			63,000	,,	3,440,000 ,,

Infantry Formations.—The most important change, though it had been long foreseen, was the order for the formation on the 1st (13th) January, 1898, of 2 new army corps. These are to be numbered 20 and 21, the first being formed in the military district of Vilna, and the other in that of Kieff. The staff quarters of the 20th Corps are fixed at Riga, and of the 21st at Kieff. These army corps are formed from the reserve infantry brigades already existing in these districts, each of which was previously composed of 4 regiments of 2 battalions. These 4 brigades have now been constituted as 2 complete divisions, composed of 4 regiments of 4 battalions. The other 2 divisions, 1 for each new army corps, have been taken from previously existing army corps. Thus the 20th Army Corps has received from the 3rd Army Corps (Riga) the old 29th Division and the new 45th Division; the 21st Army Corps has been made up of the 33rd Division from the 9th Army Corps (Kieff), and the new 42nd Division.

The places of the 29th and 33rd Divisions in the 3rd and 9th Army Corps respectively have been taken by the 43rd and 44th new Divisions.

Cavalry.—By an order of the 8th (20th) September, a 3rd independent brigade, composed of the newly-formed regiments Novo Alexandrovsk

No. 53, staff at Vlozlavek, and Novo Mirogrodsk No. 54, staff at Kolo, has been added to the 2 previously existing.

The 3rd guard cavalry brigade, which has belonged hitherto to the 2nd guard cavalry division, but has been located in Warsaw, has now been combined with the newly-formed 3rd independent brigade, referred to above, in a new cavalry division.

This combined division has been united with the independent 15th cavalry division (Warsaw District) in a new cavalry corps, designated the 2nd, with its staff quarters at Warsaw. The previously existing cavalry corps is henceforth to be designated the 1st.

Artillery.—The field artillery has been greatly augmented during 1897, and changes have been made concurrently in its organisation.

Altogether 68 light batteries and 1 mountain battery have been newly formed. Of these, 24 have been allotted to 4 new field artillery brigades of 6 batteries; 2 guard batteries to the guards rifle brigade, which has hitherto been without artillery; 3 grenadier batteries as the 3rd division with the grenadier brigade; 2 batteries in augmentation of the previously existing artillery (6 batteries) of 16 of the brigades; 2 batteries for the Caucasus rifle brigade, which loses 1 of its 2 mountain batteries; 2 light reserve batteries and 1 mountain reserve battery for the newly formed Caucasus reserve artillery brigade, which also receives a light battery.

The batteries to be raised are, in the case of the 39th Brigade, to have in peace 8 horsed guns and 2 ammunition wagons, in 7 brigades there are to be 8 horsed guns, and the rest are only to have 4 guns horsed.

A portion of the mountain batteries existing in the old brigades Nos. 20, 21, and 39 is to be converted into light batteries, and another portion to be distributed more widely amongst the brigades. The organisation of the Caucasus artillery brigades is to be in divisions of 2 to 3 batteries.

The strength and organisation of the European and Caucasus artillery, resulting from the changes described, are from the 1st January, 1898, the following:—2 artillery brigades, the 3rd guards and 1st grenadier brigades, have each 9 batteries in 3 divisions; 21 brigades have each 8 batteries formed in 3 divisions, the 1st and 2nd of which each consists of 3 batteries, the 3rd of 2 batteries.

The 4 Caucasus artillery brigades have each 7 batteries, 6 of which are formed in 2 divisions of 3 batteries; the 7th stands alone and is a mountain battery.

All the other 25 guard, grenadier, and field artillery brigades, including the 4 newly formed in 1897, have each 6 batteries in 2 divisions of 3 batteries each.

The artillery with the various rifle formations includes 1 division of 2 batteries with the guards rifle brigade; 5 divisions of 3 batteries for the 5 European rifle brigades; 1 division composed of 2 light batteries and 1 mountain battery for the Caucasus rifle brigade.

There is further 1 Finland regiment of 4 batteries.

Reserve Artillery Brigades.—6 European brigades of 6 batteries and 1 Caucasus brigade of 3 light batteries and 1 mountain battery. There are also 1 reserve cadre battery and 2 ersatz batteries.

The Asiatic artillery and mortar batteries remain unchanged.

The most noticeable of these new formations, which by their number alone are remarkable, is that of the 4 new field artillery brigades, Nos. 42, 43, 44, and 45. Following immediately on the old 41 field artillery brigades, they are like these allotted to the 4 new infantry divisions bearing the same numbers.

These changes in organisation also exercise a material influence upon the state of the reserve artillery in rear. Besides the previously existing 6 reserve artillery brigades, a Caucasus reserve brigade of 4 batteries has been formed. This will allow of the reserve brigades (in war, divisions) still existing as such, being provided with a stronger proportion of artillery than formerly. In place of each reserve division of the first order having 4 batteries, it will now have 6.

The number of previously existing mountain batteries has been decreased, their places being taken by light field batteries; the whole of the new batteries are of this nature. Excepting in Asia, mountain batteries only exist now in the 13th Artillery Brigade, the 4 Caucasus brigades, and the artillery division with the Caucasus rifles. The further reduction of the number of mountain batteries is contemplated, and an order of the 9th August, 1897, provides that the existing mountain artillery regiment (in peace 3, in war 6 batteries) in Kieff is to be abolished on the 1st January, 1899; 2 mounted mountain batteries are to be formed in its place.

Flying parks (in war, park brigades) have been formed for the new 42nd, 43rd, 44th, and 45th Field Artillery Brigades. The artillery brigades to be formed only upon the mobilisation of the reserve artillery do not receive flying parks, but 7 reserve artillery parks are to be formed in peace in place of the "mobile parks," which have been done away with. The single East Siberian park previously existing has been expanded into 2. In war they become the 1st and 2nd East Siberian Park Brigades respectively.

By an order of January, 1897, a Caucasian siege artillery battalion of 4 companies has been formed. The battalions of fortress artillery at Sveaborg, Kovno, Assovjetz, Warsaw, Novogeorjevsk, Ivangorod, and Zegrsze have been placed on an increased peace establishment.

Engineers.—The Trans-Caspian sapper company has been replaced by a sapper battalion of 3 companies, 1 of which is a telegraph company. The Turkestan sapper half-battalion has become a battalion of 4 companies.

The 14th, 15th, 16th, 17th, and 19th European Sapper Battalions have been provided with telegraph companies, and have now each 4 companies. Two new miner companies have been created in the Amur military district; 1 company is for the defence of the mouth of the Amur, the other is located at Novokijevskoe, in the Bay of Posjet.

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The 14th, 15th, 16th, 17th, and 19th European Sapper Battalions have been provided with telegraph companies, and have now each 4 companies. Two new miner companies have been created in the Amur military district; 1 company is for the defence of the mouth of the Amur, the other is located at Novokijevskoe, in the Bay of Posjet.

A new fortress balloon section has been formed at Jablonna, near Warsaw. A fortress telegraph section has been formed for Vladivostock.

Inspection in Field-firing.—A new development in the training of the troops was tried at the camp of Krassnoe Selo with such good results as to lead to the anticipation that the procedure followed may be generally adopted. The exercise was in the first instance in the nature of a manœuvre with opposing forces of all arms, and it took its course until a defensive position having been taken up by the one force, the commander of the other force had reconnoitred this position and issued his orders for its attack. The situation was then marked by flags, and the attacking force marched back to camp, while the force on the defensive put out targets to represent its dispositions before it returned to camp.

The following day the attack was carried through by the attacking force with shell and ball ammunition, the defenders being formed up in the vicinity outside the sphere of fire to witness the results.

Training of Infantry and Cavalry in Artillery Exercises.—A great extension has been given to the training of officers, non-commissioned officers and men of the other arms in the service of field and horse artillery guns. During the past three years this training has been confined to men of the guard infantry and cavalry. Last summer it was extended to non-commissioned officers and men of the 24th Infantry Division, and the programme was so far enlarged as to include the training of non-commissioned officers of the cavalry and the 24th Infantry Division to act as No. 1 of a gun. The officers commanded sections. On the 22nd July, 3 foot batteries and a horse artillery battery of war strength composed in this manner were inspected by the Grand Duke Vladimir.

SWITZERLAND.

Field Army.—With the exception of the sanitary train and of companies of position, which are furnished from the Landwehr, the field army was formed entirely of troops belonging to the Auszug. These are composed of the yearly classes between the ages of 20 and 32.

The units are numbered throughout the 8 divisions or 4 army corps.

The infantry and engineer companies (with the exception of the telegraph companies), the artillery regiments and mountain batteries and some variations in the larger bodies are exceptions to this rule. Each army corps consists of 2 divisions each of 2 brigades, and comprises 8 infantry regiments numbering 24 battalions (the 1st Army Corps has 23, the 4th Army Corps 22 battalions only), 2 of which are rifle battalions; 1 cavalry brigade of 2 regiments each having 3 squadrons, and 2½ companies of guides; 2 units of divisional artillery and 1 of corps artillery, each of 2 regiments of 2 batteries, and 1 corps park; 2 half-battalions of engineers, 1 field bridging detachment, and 1 telegraph company; 2 divisional and 1 corps field hospitals, having together 10 ambulances; 1 corps supply establishment and 2 administration companies; and 3 cyclist sections.

There are further, unallotted to army corps, 1 company and 2 half-companies of guides, 1 regiment of 2 batteries mountain artillery,

3½ formations of artillery of position comprising 14 companies, 1 railway battalion, 2 ambulances, and 1 cyclist section.

Garrison Troops.—The garrisons of the St. Gothard and St. Maurice are composed as follows:—

St. Gothard—Infantry.—2 battalions of Auszug, 2 regiments and 1 battalion of Landwehr.

Artillery.—2 fortress companies, 1 unit of artillery of position, composed of 2 companies each of Auszug and Landwehr, 1 field artillery battery of Landwehr.

Engineers.—4 companies of sappers of Landwehr, 1 telegraph company Landwehr, 1 ambulance Landwehr.

St. Maurice—Infantry.—1 battalion Auszug, 1 regiment Landwehr.

Artillery.—1 fortress company, 1 mountain battery Landwehr, ½ a unit of artillery of position, composed of 2 companies, 1 each of Auszug and Landwehr.

Engineers.—1 sapper company Landwehr, 1 telegraph company Landwehr, 1 ambulance Landwehr.

As a security against a *coup de main* before the mobilisation of these troops has been completed permanent guards are employed.

Landwehr.—This category includes all men from their 33rd to their 44th year of age. They can be employed either to reinforce the field army, or as garrison troops, or for territorial duties. Its units have, with some exceptions, the same composition and numbering as its corresponding units of the field army. In consequence of the garrison troops being separated from the rest, the 2nd, 7th, and 15th Brigades were broken up, and the 3rd, 13th, and 30th Regiments were allotted to the 1st, 8th, and 16th Brigades as 3rd regiments, and the 4th Rifle Battalion to the 16th Regiment in the place of the 47th Battalion.

Of the 8 park columns, 2 are located in each of the four park depôts, at Thun, Berne, Lucerne, and Schwyz.

Consequent upon the above there remain available for strengthening the field army, or for further employment on fortress or territorial services, the following Landwehr formations:—

Infantry.—10 brigades of 2 regiments of 3 battalions, and 3 brigades of 3 regiments of 3 battalions, 7 rifle battalions.

Cavalry.—24 squadrons dragoons and 12 companies of guides.

Artillery.—7 field batteries, 1 mountain battery, 5 companies of artillery of position (ersatz reserve), 2 ordnance companies, 16 train sections.

Engineers.—11 companies sappers, 2 field bridging sections, 2½ telegraph companies, 4 railway companies.

Sanitary.—16 ambulances, 3 sanitary trains, 5 transport columns, 8 hospital sections.

Administration.—8 companies.

Territorial Troops.—In addition to such Landwehr formations as may be left available for the purpose, the Landsturm comprises all males fit

for service between the ages of 17 and 50 years, who are not enrolled in the Auszug or Landwehr.

Strength.—The following table shows the establishment on the 1st January, 1897:—

Nature of Category.	General Staff and Railway Division.	Infantry.	Cavalry.	Artillery.	Engineers.	Sanitary Services.	Administration.	Cyclists.
Auszug	66	105,542	3,972	21,803	6,209	5,053	1,591	245
Landwehr	42	58,528	3,261	12,511	3,849	3,428	855	—

Landsturm.	Fusiliers.	Rifles.	Artillery of position.	Pioneers.	Auxiliaries.
Officers	1,669	123	161	688	—
Non-commissioned Officers	6,257	446	470	1,531	—
Men	40,877	3,187	2,372	100,015	110,818

New Landwehr Law.—In 1897 a new law was adopted for the regulation of the infantry. Thirty-three battalions, of the 1st levy, are to be formed from the fusiliers passed to the Landwehr from the 96 fusilier battalions of the Auszug, and 1 rifle battalion of the 1st levy from the riflemen passed from each two rifle battalions. For this purpose the 7 annual classes from the 33rd to the 39th year of age inclusive are employed.

Subaltern officers are liable to serve with the battalions of the 1st levy until the completion of their 44th year of age, but they may be transferred earlier to the 2nd levy. Equally, supernumerary officers of the Auszug may be transferred to serve with the 1st levy battalions of the Landwehr.

Regiments can be formed of from 2 to 4 of these battalions, and brigades of from 2 to 3 regiments, which can be attached to army corps as necessary. The classes between 40 and 44 years of age, which are the five oldest classes belonging to the Landwehr form the 2nd levy and furnish, equally with the 1st levy, 33 battalions, with an establishment to be fixed by the Bundrath. Provision is made for forming the battalions into regiments, but no brigade organisation is contemplated for these formations of the 2nd levy.

The numbering of the battalions is the same in both levies. It begins with 101, so that as a rule the Landwehr battalions have the regimental number of their battalions of the Auszug plus 100.

Artillery and Train of the Landwehr.—As with the infantry battalions, so also with the previously existing 8 field and 2 mountain batteries of the Landwehr, it was decided that sufficient value was not obtained from the organisation in force. At the same time it was recognised that the park columns and ordnance companies of the Auszug could be furnished without difficulty by the Landwehr.

From the 1st January, 1898, therefore, the 16 park columns and the 2 ordnance companies of Auszug were disbanded, as were in the Landwehr the 8 field and 2 mountain batteries, the ersatz reserve of the artillery of position, the train sections of unequal numbers (1 to 157) and the 2 ordnance companies.

From the same date there were newly formed: 8 field batteries (Nos. 49 to 56) and 2 mountain batteries (Nos. 2 and 3) for the Auszug, and for the Landwehr 16 park columns (Nos. 1 to 16), 4 staffs of park depôts (Nos. 1 to 4), and 8 park depôt companies (Nos. 1 to 8), 4 park columns (Nos. 1 to 4), 5 companies of position (Nos. 11 to 15), 5 transport companies of position (Nos. 1 to 5), 4 sanitary transport companies (Nos. 1 to 4), 1 train division (No. 9), and 8 train detachments (Nos. 1 to 8).

The divisional and corps artillery form each 1 regiment of 2 divisions; in the divisional artillery each division is of 2, and in the corps artillery of 3 batteries.

The previously existing 2 mountain batteries are renumbered 4 and 1 respectively. The 4 mountain batteries will now form, with the 4 park columns, a mountain artillery regiment.

The re-organisation includes an increase to each company of artillery of position of 2 officers and 46 men, which brings its strength up to 8 officers and 162 men. The establishment of guns is augmented to sixteen 12-centimetre guns, twelve 12-centimetre mortars, and twelve 8-centimetre guns, in all 40 guns. Each of the 5 divisions of artillery of position is formed, from 1st January, 1898, of 2 companies Auszug, 3 companies Landwehr, and 1 transport company Landwehr. Hitherto the companies have been formed 1 from each canton, but they are now to be composed of the men passing into the Landwehr from the field batteries in the proportion of 1 company from groups of from 4 to 6 field batteries, which in part belong to several cantons.

The ammunition park of an army corps will be formed entirely of Landwehr. It is composed of a mobile corps park and a park depôt, the former consisting of a staff and 4 park companies, each with 16 two-horsed infantry ammunition wagons and 14 four-horsed artillery wagons and store vehicles; the latter of a staff and 2 park companies.

As regards the train, the sanitary transport company of an army corps is composed of the officers and men of the transport of the divisional field hospital and the corps field hospital, and also of the ambulances of the Landwehr. It is supplied from the men of the second unit of corps artillery who pass from the Auszug.

The previously existing 8 Landwehr sections of even numbers (2 to 16) are renumbered from 1 to 8, and the new 9th section is formed of

men of the line train of the corps establishments passing from the Auszug. The odd numbers (1 to 9) provide for the horsing of the sanitary transport companies; the even numbers (2 to 8) augment the supply trains for the eventuality of the 1st levy of the Landwehr infantry being embodied in the army corps. The line train of divisions provides in the Landwehr the line train of the battalions of the 1st and 2nd levies; the men remaining over form a train-detachment by divisions, which bears the number of the division concerned (1 to 8) and is available for mobilisation and etappen services.

Garrison Troops.—The re-organisation of the artillery and Landwehr infantry has led to the following modifications:—

Fortress Troops of the St. Gothard.—Two fortress artillery divisions, Nos. 1 and 2, each composed of from 2 to 3 sections, each with 4 machine guns. One fortress company (No. 1).

Fortress Troops of St. Maurice.—One fortress artillery division, No. 3, with staff, 2 gunner companies, 1 observation company. One machine gun company, No. 3, of 3 sections, each with 4 machine guns. One fortress company, No. 3.

The Landwehr men of these fortress troops form the Ersatz reserve for the Auszug, and are not therefore always formed in separate units.

Ersatz Troops.—For 1897 there were 18,680 recruits raised for the ersatz service, of whom 16,036 were exercised in 1896.

They were distributed as follows:—Infantry, 15,206; cavalry, 557; field artillery gunners, 344; field artillery train soldiers, 510; mountain artillery, 120; fortress artillery, 245; artillery of position, 221; train, 446; engineers, 411; sanitary service, 479; administration, 141.

The South African Republics.

1st.—*The Transvaal.*—According to the latest advices, the white population numbers 295,397, of whom 137,947 are males and 107,450 females. There are besides 622,544 Kaffirs (123,320 men, 159,966 women, and 334,280 children).

The number of burghers liable to military service is 26,500, of whom 14,259 are between 18 and 34 years of age, 8,152 between 34 and 50, and 4,089 under 18 or over 50.

Since 1895 the State artillery has been completely re-organised, This corps is to form the nucleus of the armed forces of the republic, and it must always be ready to march. Its military training is to be so regulated that at the termination of their period of service the men may be prepared, if necessary, to act as non-commissioned officers.

The corps, of which the commandant-general is the chief, consists of 1 colonel-commandant, 1 major (who is destined to lead the artillery in war), 2 artillery captains, 1 captain-intendant, 5 artillery 1st lieutenants, 1 1st lieutenant as adjutant to the colonel, 1 1st lieutenant of the field telegraphs, 1 surgeon (1st lieutenant), 12 artillery 2nd lieutenants, 1 quarter- (and pay-) master (2nd lieutenant), 1 veterinary surgeon (2nd lieutenant), 1 bandmaster (2nd lieutenant), 8 non-commissioned adjutants

of artillery, 1 lieutenant of field telegraphy (superintendent), 1 lieutenant of Army Medical Department (apothecary), 1 lieutenant of workshops (superintendent), 5 sergeant-majors of artillery, 1 sergeant-major of field telegraphs, 1 trumpeter-major, 5 quartermaster-sergeants of artillery, 20 artillery sergeants, 3 field telegraph sergeants, 1 hospital sergeant, 30 artillery corporals, 3 field telegraph corporals, 1 commissariat corporal, 1 tailor, 1 saddler and shoemaker, 226 artillerymen, 28 apprentice telegraphists, 4 men of commissariat, 18 musicians, 11 sick attendants, and 6 apprentice shoeing-smiths.

The number and patterns of the guns are not accurately known. An earlier communication gave 6 light and 6 heavy Krupp guns, 4 light and 2 heavy quick-firing guns, 1 rifled muzzle loading gun, and 1 machine gun. But various purchases of guns have been made in recent years. In his last annual report the commandant-general reported two 6½-centimetre Krupp guns, with ammunition, had been made over to the Volunteer corps at Krugersdorp for practice purposes, and that an 8-centimetre Krupp gun had been received in the store at Pietersburg.

Volunteers.— In order to encourage the love of arms and shooting exercises a law was passed in 1894, authorising the constitution of an infantry or cavalry Volunteer corps, provided in any place at least 50 burghers desired to form one.

Already in 1892 and 1893 a corps had been formed consisting of an infantry formation of 100 men, and a cavalry one of 110 men, with 4 combatant officers each.

A corps raised at Johannesburg in 1896 consists of 2 infantry battalions, one of 3, the other of 2 companies, 2 cavalry squadrons, a field telegraph detachment, and an ambulance section. The whole corps of 600 infantry and 200 cavalry is under a colonel.

Krugersdorp has a cavalry corps, about 150 strong.

In 1896 corps were constituted at Middelburg, Carolina, and Ermelo.

The Orange Free State.

The number of men liable to service is about 20,000.

The permanent troops consist of the corps of field artillery, of about 80 men, and is stationed in the fort at Bloemfontein.

There is a reserve of about 400 men.

The armament is composed of 14 Krupp guns of 7·5-centimetre, 5 Armstrong 9-pounders, 2 Whitworth 6-pounders, 1 Whitworth 3-pounder mountain gun, one 3-centimetre Krupp gun, and 3 Maxim guns.

Infantry Tactics and the Employment of the Combined Arms.

A work by General von Schlichting, entitled "Taktische und strategische Grundsätze der Gegenwart," which was published last year, forms the basis for the discussion of an interesting point of tactical procedure. It refers to the withdrawal of company supports (the "petits paquets" of the French), and, in connection with this, to the extension of entire companies of a battalion from the outset.

This is provided for by the regulations in France and Russia (provisionally), whereas in other armies the small supporting bodies still play their part.

General von Schlichting advances the following grounds for the latter procedure:—"The company on a war strength, after it has been extended, is no longer in the hands of its leader when working over ground in touch with the enemy. The premature extension of the entire unit promotes this tendency, which was in time excluded, as being so objectionable for fighting in extended order. In varied ground one wing may be brought to a standstill by the opportunity of producing a favourable fire effect, while the other advances as ordered; between the two, imagine the company leader, who will have dismounted, at this time maintaining the unity of his command. Upon entering on the fight an extension zug by zug recommends itself—if at all practicable—especially as a change will have to be made in direction in the majority of cases, at first in most, and small deployments will enable this to be most easily effected. There must be new men at hand to fill the gaps, and maintain the intensity of fire at an equal degree. It is all very well to preach that small closed bodies behind the firing line are receptacles for bullets, and will suffer losses, without at the same time making any preparation, in the event of being afterwards obliged by the procedure adopted, to place other battalions behind those which are fighting entirely extended."

The French regulations advance the following reasons against the extension by successive portions:—"The supporting bodies are not sheltered from the fire directed upon the firing line in their front, and suffer losses, without themselves being able to take part in the fighting. The company when broken up is in part no longer under the immediate leading of the captain. The subordinate bodies may come under the orders of inexperienced leaders, who will not always handle them properly, and will allow the proper moment for their advance to pass. Lastly, the pushing up of reinforcements produces the premature intermixture of units, it makes leading difficult, and acts detrimentally upon the good delivery of fire."

The Russian regulations (provisional) justify in the following terms the elimination of the company reserves when working with the battalion:—"It is necessary to bring into action the greatest number of rifles possible, to place from the first the conduct of the fire in the hands of the experienced company leaders, and to minimise the losses, by withdrawing from exposure to hostile fire the generally useless supporting bodies. By the extension of entire companies (the provisional regulations lay down that in normal conditions two whole companies are to form at first the firing line, and the remaining two the battalion reserve), the battalion commander has for the time two formed companies under his hand, whereas with the system of small fractions he has perhaps one intact company at his disposal, but often only the supports will remain available as reserves, which does not suit him at all, for they are under the company commander who is in front."

Other reasons could be added to these, amongst them the ballistic

consideration, that three echelons of troops (firing line, supports, and reserve companies) pressing closely upon one another in a comparatively restricted space, will suffer greater losses both from artillery and infantry fire than two echelons (firing line and reserve companies) occupying an equal space.

Equally, greater simplicity cannot be denied this formation, and, as regards simplicity in tactical procedure, the late General von Schachtmeyer has strikingly remarked :—"True tactical wisdom lies in simplicity, which spares the tactical mediocrity, with the pain of choice, much embarrassment."

If one considers the divergent views that exist, even on the parade ground, about the position of the supporting bodies, their distance from the skirmisher line, and the manner of their advance, and takes also into consideration the inherent weaknesses ballistically of this formation—which may 25 years ago have been quite practicable—it must be recognised that its days are numbered.

It is interesting to note the statement of an adherent of this formation, who has written:—"It is impossible for supporting bodies in close order, with two ranks, to advance under uninterrupted infantry fire at close and medium distances." ("Einleitung und formale Taktik der Infanterie," Captain von Balck. Berlin, 1897.)

The defenders' infantry fire at medium distances will be almost always uninterrupted. The supporting troops should contribute towards interrupting it; but if at medium distances—from 1,000 metres—they are impossible, they lose the advantages claimed for them (reinforcement of the skirmisher line, and reservoir for this).

They must, therefore, follow with rank entire or with opened ranks; but of this, in Germany at least, the adherents of small bodies as supports will not hear. There is then, tactically, a vicious circle amongst the friends even of the "petits paquets," and, therefore, the two most recent regulations—the French and the Russian—seem to have taken the right course in putting an end to it.

As regards the system of scouts (éclaireurs in France and okhótniki in Russia), its fundamental idea is no doubt tactically correct, in so far as it allows of the deployment of the skirmishing line for the purposes of security and information taking place as late as possible, which is always an advantage from the point of view of leading. But owing to the exaggerations of this system, as practised in France, its value has been affected. The arrangement by which a thin screen of patrols is pushed forward until the distance from the enemy is reached at which the fighting of the advanced skirmisher lines begins, can only contribute to secure the first deployments and carry them out more quietly.

The infantry fight requires above everything quiet in its preparation and first development. It is a dangerous deception to judge of the tactical skill of a leader and the tactical capability of a body of infantry from an impulsive and smartly engaged fight. True smartness and enduring energy only show themselves in the carrying through of a fight;

but before the infantry is so far, before it is really engaged, a tactical organisation must be arranged quite quietly, which shall ensure unity and endurance of effect.

In the past year the conviction seems to have gained more ground in infantry circles, that our tactical training must be based on the conflict of masses and not on mere engagements. This does not in any way exclude the greatest care being devoted to the training of the infantry soldier in fighting alone, but battles are not won by means of such fighting nowadays.

But the so-called "Auftragverfahren," or the giving of general instructions, leads to isolated engagements. Writing of the system in his "Betrachtungen über Heerwesen und Kriegführung" (Berlin, 1897), Lieutenant-General von Boguslawski expressed himself in the following terms:—"Far be it from us to dispute that such a procedure may, especially in the case of a single battalion or regiment, be quite sound. But it seems to us wrong to erect it into a principle, to an exclusive method.

"We think that for any officer who has fought in great battles as an infantry soldier this must be patent. We would ask then where the instructions for battalions and companies come in.

"In the great majority of cases the affair will develop in such a manner that the commander of the regiment or the battalion deploys his troops in such a direction and in such a manner as to leave no doubt. If time admits of it, he states briefly the object of the engagement, gives a point of direction or himself leads a fraction which is followed by the rest, orders the formation of the whole and moves forward. In such a case what is the good of giving independent instructions, which occupies time, and often opens the door to misunderstandings?"

It may be added that it is much easier generally to give indefinite directions than a definite order. The officer who gives an order undertakes a greater responsibility than the one who gives directions only, and who, if things go wrong, will be inclined to seek for the fault in a false appreciation of his instructions.

Instructions may often be appropriate for cavalry and artillery; but seldom for infantry, at least, in bodies from the brigade downwards.

In any case, orders which say neither too much nor too little will contribute towards making a certain unity in the handling of the troops more possible than if they were operating under instructions only. But the infantry is the worst of all the arms as regards the unity and lucidity of its tactical action, and therefore the effort to limit tactical friction as far as possible rather than to increase it seems justifiable. The war machine, which has to overcome the inevitable friction of battle as best it may, ensures by this means a main chance of victory. A regiment or a brigade which is accustomed to work by order in the first stage of the fight, makes even in peace a more certain impression. It is said to be in the hand of its commander. But whoever understands by "orders," on the battle-field, the more or less mechanical importation of drill-ground customs will undoubtedly suffer tactical shipwreck before the enemy.

The reader will, perhaps, have asked impatiently already when he is to hear anything of the actual fighting of infantry, of fire tactics. But this latter is not a thing standing by itself, but it is rightly appreciated in the closest connection with the preparatory measures for the actual fight, which is one of massed fire, and the tactician who is in a position to create the most favourable conditions for this massed fire-fight stands on the pinnacle of capacity. But this is naturally only to be attained by skilful arrangements for the march, deployment and engagement of the infantry masses. Higher tactics thus dictates the law to lower tactics.

Only, therefore, so much room should be given to detail as it deserves. All the science of infantry fire, all the individual training, are of no avail nowadays, unless the tactical leading understands how to combine them for a skilful, powerful effect.

It will seem to many that General von Scherff ("Die Lehre vom Kriege auf der Grundlage seiner neuzeitlichen Erscheinungsformen." Berlin, 1897), especially by laying down tactical conditions for the attack of infantry, here and there in his philosophical formal demonstration goes beyond the living changing effects of the fight; but the substance of his demands to banish the arbitrary, the subjective, as far as possible, from the procedure of the fight, appears to many to be justified. Rules cannot be prescribed for the leading of the troops, because this depends chiefly upon the personality of the leader. But what in normal conditions the procedure of the infantry will be in the fight can be reduced as well to-day to a definite technical method, as has at all times been possible. The use of the skirmisher swarm need not alter this. However this may be, in any case a growing re-action is becoming international against the so-called free procedure. This is evidenced not only by numerous literary expressions of opinion, amongst which are some of weight, but also by the direction taken in the latest regulations.

The requirements referred to must not be taken as being refuted by the sentence "superiority of fire is to be obtained by appropriate ways of leading," so far as an attack over ground more or less wanting in cover is concerned. Amongst these ways of leading are to be understood secondary methods, such as threatening the flanks, superior artillery effect, the production of concentric fire effect, the employment of the spade, of the night, etc. It is certain that the modern fight can afford less to dispense with such methods than formerly, but they will not absolve the infantry from the frontal attack of strong positions under difficult circumstances. The frontal attack of infantry forms on the contrary, as military history teaches, the substance of battles. Even the enveloping attack comes eventually to be a frontal one.

The entire modern tactical development tends towards the creation of a method of fighting which will support it in its difficult task.

In the controversy on this subject also too much stress must not be laid on the losses that might be incurred. At the time of the Silesian wars the effect of fire on attacking infantry was in its final results much

more dreadful than it is now. But no one thought, on this account, of declaring the frontal attack of infantry a failure.

In France, as also in Austria and Russia, volley-firing plays a great *rôle* by the regulations. It was pointed out in the 1896 reports that objections had been raised to this preference for volley-firing, which recall too much the drill ground. It is claimed by its adherents that the leader who keeps his troops well in hand has a great advantage, and it will enable him to continue this method of firing. This is quite true, but the difficulty is to keep them in hand, looking to the many disturbing and disintegrating influences of the modern fight.

The principle of firing volleys is more or less based upon the retention of the troops in formations which generally appear not to be applicable in real war, on ballistic grounds, and upon their regular execution at medium distances, which will not be realised for psychological reasons. Exceptionally volley-firing may be applicable, but the future belongs to quiet individual fire, supported, and as far as possible influenced, by fire-leading and fire-discipline.

During the past year a re-action has also made itself felt in France against the principle which has been maintained there of late, that infantry fire should only commence at the limits of medium and close distances. In Germany, a short time ago, this theory had many adherents. In recent years, however, a change has been noticeable..

A French officer of reputation, General Philebert, has discussed this question (1, "L'Instruction du tir"; 2, "L'Infanterie perd son temps," Paris). He writes:—"It is said that good troops must approach as close as practicable to the enemy before opening fire. That is no doubt a good idea, but it would be as good a one to say to a poor devil who is dying of hunger, Be rich!

"Is it possible to open fire first at 600 to 700 metres? Is it credible and probable that men will march under rifle fire without replying to it? We do not believe it, and are strongly of opinion that fire draws fire, and that those who have to suffer from fire will reply to it. It may be fatal, but it lies in the nature of things. . . .

"At all times, fire has been commenced at long distances, even when the range of the bullet did not exceed 200 metres. At the present time, when the rifle is effective at 2,000 metres, much time will be required to approach to from 500 to 600 metres; this is certainly not agreeable, but it cannot be altered."

The new Russian Infantry Drill is still regarded as provisional. As regards the method of attack, it occupies a middle place between the "free" procedure of the German pattern, and the normal dispositions of the French regulations.

In the first place, the distinction made in the German regulations between the rencontre battle and the attack of a prepared position is not adopted. The procedure is based on the ranged battle. This seems appropriate, first, because the fighting formations and the procedure of the infantry are the same in the rencontre engagement as they are in the

planned attack—it is only the employment of the troops that differs—and consequently the regulations do not need to make any difference in this direction. Secondly, rencontre battles are more or less exceptional—often not desired—and regulations should not make provision for exceptional cases. Thirdly, the rencontre engagement only makes exceptional measures necessary for the foremost troops; the main body of the infantry, which has to carry through the actually decisive fight, is unaffected by it.

As soon as touch is established with the enemy, if it be not found possible to gain a clear knowledge of his situation, the advanced cavalry bodies are to be reinforced by the "okhótniki" of the foremost battalions—1 officer, 4 non-commissioned officers, and 16 selected and specially trained men per battalion.

The deployment of the infantry will take place in open ground at from 2 to 2½ versts from the enemy, or if he has artillery, at about 4 versts.

There are two phases in the attack that are particularly emphasised:—

1. The advance as far as the decisive fire position.
2. The assault on the enemy's position itself.

Up to effective range, which for the defenders is taken to be 2,000 paces, the companies of the fighting line move, preceded by a thin skirmisher veil, in ranks, with sub-divisions on the same alignment, or in line. On getting within 2,000 paces skirmisher lines are formed by the fighting line, which continues to advance quietly and uninterrupted. Firing is only permitted at especially favourable objectives at this period. At from 1,400 to 1,000 paces firing becomes general. At this distance all the portions of the force destined for the attack must be drawn up on the proper front, because it is then impossible to move them into it.

The skirmisher line is gradually reinforced. Its further advance is carried out as far as practicable at a walk, either by the whole line together or by successive portions. The decisive firing position will be taken up at from 400 to 500 paces from the enemy. From here the decisive assault is made by the reserves, which have come up in the meantime, combined with the skirmisher line. If it is by any means possible a battalion or company is placed on one flank to enfilade the enemy.

The principle laid down in the Russian regulations, that the skirmisher line, as well as the rest of the troops destined for the attack, should make a continuous advance at a walk up to from 400 to 500 paces from the enemy, may be called in question from a tactical point of view.

If the ground permits of this procedure, so much the better for the attacker, who has to do with so stupid an opponent, who selects such favourable ground for the attacker. In the plains of Eastern Europe protection of this nature from the ground is seldom to be met with. And again, tactically, objection must be raised to fire

position being fixed at from 400 to 500 paces of the enemy. In the Dutch regulations (equally of recent date) it is fixed at 700 metres, nearly double as far from the defender as the Russian. I believe practice will indicate it as from about 600 to 700 metres.

In spite of these echoes of shock tactics, the Russian regulations contain a very great deal that is sound respecting tactics, and much that is worthy of imitation in regard to the formations and distribution of infantry for the fight.

The Action of the Combined Arms.

Referring to the Kaiser manœuvres in Germany in 1897, the most noticeable tendency of the East Army was to avoid the strategy of detachments, and to enter the fight "massed," which was of great value to the tactical energy.

On the first day of the manœuvres a rencontre fight took place, when the great advantage to carrying it through of endeavouring to gain the objective by bringing the forces into action as simultaneously as possible was exemplified. The re-establishment of the fight by forces held back at first involves in war the more consideration, because peace manœuvres often offer a picture as regards this point that is altogether unreal.

When a body of troops is pushed back by superior forces, it implies nowadays a much more intense moral shaking than formerly, because the effect of the fire by which it is followed up is more intense. Such a body of troops is tactically of very little value afterwards.

If fresh forces now come into play, they can hardly be in a position to re-establish the lost moral firmness of the defeated main body. But in manœuvres such "partially defeated" troops are frequently treated again in a short time as nearly equally valuable tactical factors, however powerfully they may have been shaken. If now the troops that have been held back are brought into action, the principle of the last trump is applied in favour of those who, still unharmed, continue to co-operate with them.

It may often not be possible to alter this procedure in peace. But it implies a certain obscuring of the tactical matter of fact, and is contrary to the principle of bringing the forces into action, as far as practicable, united and simultaneously.

The character of the rencontre fight which the collision on the first day produced, raises another point for discussion as regards the employment of the troops. It may be taken to be generally known, that the rencontre battle, such as was frequently observable in the Franco-German War, is not to be regarded as answering to ideal leading, for it makes the planned and united employment of the forces very difficult, even when it does not preclude it, and favours the so-called soldiers' battle. But the science of leading troops must certainly reject this latter. It need not, however, prejudice the practical science of war to refer to the rencontre battle as an unavoidable episode of modern warfare.

The fact appears to be proved by what occurred at Hanau on the 6th September, 1897; for in this case a more accurate knowledge of the

enemy's movements may be assumed than would be the case in war. Notwithstanding this, a rencontre battle ensued; and on closer examination another different kind of lesson may be drawn from it, which favours the opponents of this kind of battle.

In the course of the 6th September, 6 divisions of the eastern force could come into action against 3 divisions of the western, because the latter had an army corps so far in rear that its participation in the operations on that day seemed to be precluded. In these conditions was it for the west to decide upon a rencontre battle? Would it not have been of greater advantage to give up the offensive altogether on that day, so as to avoid the danger of an isolated tactical defeat, and to fight on the day following with the forces concentrated? The strategical grounds for adopting an opposite course, as well as the contention that the offensive always favours success, cannot refute the fact, that all strategy and every principle must completely fail, unless the tactical situation is such that chances of success exist. But when 6 divisions can be brought into action against 3 divisions the tactical chances of the latter are non-existent.

On the third day of the manœuvres an opportunity was given for the independent action of subordinate leaders, such as might arise in war, and such as would rightly be desired by every leader of troops. A division by the order of the army commander had made a movement with a view to seizing a specified position. The opponent utilised the gap that resulted from the movement to get round the flank of the troops engaged in the first line. In spite of the definite order, the division referred to at once stopped its advance, and entered the fight independently, by which means the line was preserved from being broken through. This was real independence, which systematically and on a just consideration of the pros and cons, did not hesitate to depart from an order that had been received.

Such independence must not be confounded with what is to be understood by the term independence as applied to the subordinate leaders, down to the smallest tactical units. The same divisional commander, who in this instance was quite satisfied that the situation did not admit of waiting to deploy the division, but attacked with all available forces, would in all probability have strongly deprecated regiments or battalions acting separately on the initiative of their commanders during the execution of a planned attack.

There is only this to be added to this instructive practical example: the principle of independence can only be awarded a restricted space in the actual procedure of the battle-field, without endangering seriously the unity of the tactical handling. On the other hand, independence in the right place as an attribute of a leader, will come of itself to every intelligent officer who has character. If these characteristics should be wanting, a uniform regulation pattern accentuation of "independence" may easily lead tactically to more harm than good.

On this occasion (1897) the cyclists have taken their place at the great German manœuvres as organised troops. This organisation was

indeed only a provisional one, and one cannot but agree with the opinion that is gaining ground, that the cyclists must be given a permanent tactical organisation as fighting troops. Undoubtedly an organisation effected when the necessity arises, or a body of men got together a few weeks previously will always be inferior compared with cyclist troops with a solid organisation, as is the case with every military improvisation.

The idea of employing cyclists as fighting troops has been scientifically supported for some years, without—except in the case of some small armies—finding general practical recognition. This is the known sorrowful history of most military novelties. At first the right of existence was denied them for reconnoitring and reporting duties. Then the utility of their employment as fighting troops was doubted. There ought now to be an end of this doubt. Notwithstanding various entirely inaccurate reports in the Press, it must be established that the fighting cyclists repeatedly did right good service at the German manœuvres.

With the Bavarian portion of the army (east), a cyclist formation of about 100 men came into action. This was generally employed with the cavalry division. With the Prussian force (west), the several army corps had cyclist formations of from 60 to 80 cyclists each, which were allotted, part to the cavalry division and part to the advanced guards.

Notwithstanding that the German military cycle is rather heavy and not adapted to fold up, as is that in use in the French Army, the cyclist formations succeeded in getting on, even in difficult country and on bad roads. They were repeatedly able to act effectively in occupying defiles, preventing or disturbing the construction of bridges, holding the enemy's advanced troops; in short, making themselves generally troublesome to the enemy.

With further organic and technical development, the cyclist troops of the future will no doubt also enlarge their tactical sphere of action, but only within certain limits; and their action should apparently be of greatest value in securing the tactical independence of the cavalry.

As regards the employment of cavalry—as forming part of the combined arms—it is to be noted that in the German Kaiser manœuvres the divisional cavalry, in the middle of the front of battle, favoured by the nature of the ground, found opportunities for successful attack by surprise on the exposed flank of the engaged firing line. It may be said that these were exceptional. Still they show that smartly led cavalry will find opportunities of co-operating with the infantry, as was actually the case on that occasion; in future cavalry will have probably to pay more attention tactically, not to acting for itself only, but to endeavouring to operate in closest connection with the engaged infantry.

It is generally admitted that the employment of field artillery in masses suitable to battle tactics was almost perfect during the manœuvres in the Weterau. The conviction continues to gain ground, that in the present day the execution and final decision of the fight is principally dependent upon its preparation; and, consequently, that this preparation must be regarded as the most important stage, and not the so-called assault regarding the delivery of which everybody is racking his brains.

This determines the great importance of the artillery, for to it falls the preparation in the greatest measure.

In connection with this, it is typical that this preparation by the artillery is no longer regarded, as formerly, as a gradual development of the intensity of the fight, but as a powerful effect of the artillery from the outset. To apply this idea sensibly to the employment of the infantry is the modern tendency of tactics, and the endeavour to give effect to it comes often into conflict with those who advocate the fight being engaged directly from the columns of march. The artillery has shown for a long time the sound desire to withdraw itself from this principle, consequently there is an ever increasing departure from what was formerly the obligatory procedure of attaching artillery to advanced guards. On one of the manœuvre days in the Weterau it happened also that the artillery was placed too far forward in the column; and it was not only forced to take up an unfavourable artillery position, but it found itself exposed to hostile infantry fire before it could be extricated by its own infantry. This happened during a rencontre fight.

On the other hand, it must not be overlooked that the employment of artillery in masses in the first stage of the fight makes the question of space with reference to the infantry a difficult one.

In previous reports the tendency was noticed to recommend massed formations for the march before a battle, such as were repeatedly employed by Napoleon, but modified to suit modern requirements, as a tactical means of enhancing unity of action. General Lewal first sustained this idea scientifically, basing his arguments amongst other instances on the massed advance of the 2nd German Army on the 18th August, 1870. General von Scherff came to similar conclusions in his well-known "Kriegslehren." General von Schlichting, however, rejects this procedure in his latest work, in which he writes:—"The movement of masses of troops larger than a brigade in assembly formation is no longer practicable on any ground. The return to column of march will then as a rule be advantageous."

General von Boguslawski supports the Lewal-Scherff view of this tactical disputed point, and proposes a definite mass formation for the advance of a mixed division. He says:—"It seems to us undoubted that the corps and divisions of an army accustomed to such mass formations can be more easily led and handled by the superior commander than troops that always move in long columns on the roads, and only form up when their heads are struck by the first bullets. The superior commander must always be conversant with the picture of the different formations, and, above all, he must not be prejudiced by the idea that in war marches of approach can only seldom be effected in such formations."

The tendency to march in widely separated columns should be restrained. Theoretically this course can be justified; the columns march separately with a view to attacking simultaneously. In war it has often failed on account of friction, which forms the rule rather than the exception. At the manœuvres (1897) in Moravia, the turning column

arrived too late, for the counter-attack had been delivered by the defenders before it could make itself felt.

This example contains much that is instructive, not only in the tactical separation, but also in regard to the employment of the main reserve. Had the defender on this occasion followed the frequently quoted principle, that a reserve must be kept in hand to the last, he would naturally have retained his reserve intact to meet the attack of the enemy's turning column. In such a case the result would probably not have been in his favour, for a defender who is turned seldom succeeds in escaping from the tactical trap. By the early action of his reserve the defender in this case gained the victory.

By following this principle of keeping a reserve in hand to the last, a complete defeat is in some circumstances avoided; but by such false economy the chances of a decisive victory will be more often destroyed. It will therefore show a juster appreciation if the leader does not choose that principle as his tactical rule of conduct, but at the right moment puts his last breath into the decision.

Cavalry Tactics.

The extent of the action of cavalry in a battle, which has been freely discussed in German military literature, must be limited at the employment of cavalry masses against hostile infantry and artillery in the course of a battle. Cavalry duels in advance of the front or on the flanks will not be affected by the development of the effect of firearms, which forms the crux of the question.

Small bodies of cavalry, such as squadrons and regiments, which only require a small extent of cover for their preparatory position, and a small amount of space and time for their deployment will be able now as well as formerly to utilise a temporary exposure of the enemy at a point of the line of battle by rapid surprise. The threatening of unshaken infantry on its flanks, charging shaken infantry after abandoning a position or after attacking unsuccessfully, the rolling up of a flank of artillery that is *en l'air*, disengaging its own infantry or artillery when hard pressed, are affairs of the moment, the suddenness of which must lessen the effect of hostile fire, less for technical than for moral reasons.

It is different as regards the employment of cavalry masses in the modern battle; but this question seems to affect only the training of superior cavalry leaders. The local distribution of cavalry masses upon the development of the battle must be based in each instance on the operations that have immediately gone before, and on the suitability of the ground.

At the German Kaiser manœuvres in 1896 and in 1897, the ground on which the flanks of the infantry of the opposing forces rested excluded the cavalry being placed in the prolongation of the front, and they were behind it.

But in such conditions where the cavalry masses are first placed, there they will generally have to act; distance precludes great movements to a flank during the changing course of a battle.

A cavalry division in a preparatory formation suited to the ground will occupy as a mean 600 metres in breadth and 200 metres in depth. How near it can approach in this formation within the hostile sphere of fire, without its fighting power suffering prematurely, is a matter its leader must judge of by his previous practical study of the effects of fire, that is, by observation of field firing by the other arms in service conditions.

What space will be required for the deployment of a cavalry division for its attack on hostile infantry or artillery cannot be generally determined. It depends upon the measures taken by the enemy to meet it, and upon its own rapidity. In no case, however, should the space required and the time for traversing it be under-estimated. These considerations relegate the possibility of surprise by cavalry masses to a lamentably but unavoidably small chance, and make their intervention in the course of the battle exceptional.

But their success in the future is not questioned by anyone, always provided the passing favourable moment is utilised at the right time. The experiences of the last war (Kunz, Major a.D., "Die deutsche Reiterei in den Schlacten und Gefechten des Krieges von 1870-71." Berlin, 1895) and the lessons offered by the constantly progressing effect of modern firearms, seem to point to the necessity for the thorough training of cavalry leaders during peace, the practical testing of which must be amply provided for by peace exercises.

The spirit of the new cavalry regulations that have been introduced during recent years points to the separation of the cavalry from intervention in the artillery and infantry fight.

The omissions and mistakes in the employment of the horse artillery belonging to cavalry imposes upon the superior commander a closer acquaintance with the working of this auxiliary arm.

However praiseworthy may be the initiative of a skilful artillery commander, the cavalry leader ought in no circumstances to forego the disposition of his batteries according to his own views.

Field Artillery Tactics.

The past year has at last brought a decision regarding the important question of the arming of field artillery, which since the introduction of smokeless powder—that is, for the last eight years—has occupied the thoughtful officers of this arm more than any other.

The new gun is a compromise between the adherents of a greater fire effect and those who advocated greater mobility. It is due to the advance made in technical art that a gun has been constructed which combines both greater effect and increased mobility, as compared with the old one.

As soon as the question of the pattern of the gun of the future was decided, that of its tactical employment came into prominence. The new gun combines a greater effect of the single shot with a greater state of preparedness. The question of its employment, and of the organisation of the field artillery, which is closely connected with this, can be answered in two ways, according as greater value is attributed to quiet, well-directed fire, that is, to the effect of striking the target or to a greater

quantity of rounds being fired in a short time—that is, to the greatest possible rapidity of fire.

The advocate of quiet, well-directed fire, with observation of each shot, will desire strict centralisation in the hands of the battery leader, which is only possible with sub-division fire; this view, therefore, would point to the necessity of reducing the number of guns in a battery from 6 to 4. This alone can secure the greatest use of the power of the gun, quiet service, and sufficient ammunition supply. For in a battery of 4 guns, each gun can be provided with a greater number of rounds than in a battery of 6 guns, without an increase in the number of ammunition wagons. But if the best value be attributed to the highest development of rapidity of fire, this must necessarily lead to a change in the method and order of firing. Some advocate the ranging being carried out as now, and after it is completed would employ rapid fire. Others would leave the ranging to the observation of the sub-division leaders, and only fire by sub-divisions; a third party advocate the omission altogether of systematic ranging, and by means of rapid fire, would search an area of the breadth of the battery and 1,000 metres deep, on the assumption that the target within this area must inevitably be struck.

We are of the opinion, expressed here on previous occasions, that quiet and well-conducted fire should always be employed, because it leads the most quickly to the desired end, with the least expenditure of ammunition. Certainly in ranging, and afterwards, well-aimed, observed, and well-sustained (not rapid) fire is certain of its success. The effect of fire is so great, that, if ranging is properly carried out, a few projectiles will secure the destruction of the object aimed at; rapid fire then is superfluous. But if the ranging be not properly done, rapid fire is pernicious, for it consumes the greatest amount of ammunition in the shortest possible time. Rapid and dependable ranging is of much greater value than rapid fire after the ranging has been completed.

Undoubtedly a small well-trained battery (of 4 guns) will range more rapidly and accurately than a large one (of 6 guns), for it is better under the hand of its leader.

The question of the bombardment of covered objects by the field artillery has entered on a new stage since the introduction of the new gun. This gun has, in a greater degree than the old one, the character of a flat trajectory gun, so that a high-explosive shell fired from it would have still less effect than if fired from the old gun. The introduction, therefore, of a field howitzer, which could do good service in the preparation of the infantry attack has become much more likely.

The howitzers would be united in divisions of from 2 to 3 batteries, and be distributed in the ratio of one howitzer division per army corps.

The important question, whether the corps artillery should continue to be organised separately as such, or permanently distributed to the divisions, is approaching a decision, for with the introduction of the new field gun a change in organisation can no longer be deferred. The number of advocates of the corps artillery has diminished steadily; for some time past they have not included any German artillery officers. On

the other hand, General von Schlichting, in his recently published book, "Taktische und strategische Grundsätze der Gegenwart," advocates the retention of the corps artillery. He argues that the necessity for a strong deployment of artillery generally arises in the course of the engagement, to satisfy which the corps artillery can be employed, "serving thus as a kind of reserve formation such as is required by the other arms for carrying through their fight."

THE BATTLE OF BLENHEIM,
13TH AUGUST, 1704.

THE following contemporary account with a plan of the great battle fought by the Allies under the Duke of Marlborough and Prince Eugene of Savoy, and the combined forces of the Elector of Bavaria and the Marshals of France, Tallard and Marcin, is taken from an old print kindly lent by the Earl of Dartmouth. The plan of the battle was executed by Colonel Ivoy, Quarter-master-General under the Duke of Marlborough.

The description of the standards and colours captured in the battle has been contributed by Charles Dalton, Esq., Editor of the "English Army Lists and Commission Registers, 1661-1714."

To give a faithful relation of this battle, which by a particular and visible providence turned to the immortal glory of the arms of the Queen of Great Britain and her allies, it is necessary to speak of the motions we made after the fight near Donawert. After that good success we passed the Danube and then the Lech without any opposition, and having reduced the town of Reyn, we were, in a manner, masters of all Bavaria, which the Elector abandoned to us, so that we posted ourselves where we thought fit, particularly at Aycha, which is a very fine town, and at Scrobbenhause, where we settled our magazines. Afterwards we advanced to Friedberg, where we encamped in sight of the enemy, who had strongly entrenched themselves under the cannon of Augsbourg. It being impossible either to draw them to an engagement or attack them without infinite disadvantage, and the Elector of Bavaria having returned shuffling answers to the kind invitations sent him for an accommodation, a party of 4,000 horse was commanded out to burn and lay waste his country. But the Elector continuing obstinate, and depending much upon the relief which Marshal Tallard was bringing up to him, our generals resolved to attack the town of Ingolstadt, and Prince Eugene being advanced as far as Dillingen we passed the Paer, and came to Kiebach the 4th of August—our left wing reaching to Aycha, and the right beyond the castle of Winden, burning all the villages we had spared before between those two camps.

The 5th August. Our army passed again the river Paer, near the town of Schrobbenhause, leaving it to our right, and encamped—the left wing at a place called Kloosterberg, above the little town of Hogewart, and the right wing behind the said town of Schrobbenhause.

The 6th. Having received intelligence that the Elector of Bavaria was come out of his entrenchments, and was encamped by Tirhaupten, on the other side the Lech, between Biberbagh and Kloosterholts, it was resolved to observe him and to advance to Donawert, which was accordingly executed, all the provisions being already arrived at Nieuburgh. On the 7th the General Count Merci was detached from the Imperial Army, under Prince Lewis of Baden, with 700 horse to secure Donawert on one side; whilst Brigadier Baldwin, who from the 14th of July had been detached from our army, received orders to enclose the same town on the north side with his 500 horse. On the 8th, all our army under the Duke of Marlborough marched by Zandiselle; and that of the Emperor, under Prince Lewis of Baden, on the other side of the little town at Potmes or Beemen, which was already reduced to ashes. The same day we were informed that the enemy decamped from Kloosterholts and came near the Danube, and that Tallard was advanced behind them with his troops, both bending their march towards Lawingen; whereupon the Duke of Marlborough advanced on the 9th towards Enheim, where he posted his left wing, and his right at Dillingen. Prince Lewis marched his body to Nieuburgh, leaving with the Duke of Marlborough 28 squadrons of his Imperial horse and dragoons, under the command of the Prince Regent of Wirtemberg, General of the Horse, who came and encamped on our right wing. On the 10th his grace continued his march toward Reyn, his right wing reaching to Middelstad and his left to Pluckingen, having the town of Reyn in our front and the quarter-general at Nederschonevelt. The same day the Duke of Wirtemberg being detached with his 28 squadrons marched along the cloister at Nederschonevelt, and passed the Danube on the bridge that was at Merxen, in order to go and encamp near Donawert and reinforce Prince Eugene. Twenty battalions were also detached, under the command of General Churchill, who passed them over the same bridge, and encamped at Merxen with all the artillery, with the same purpose of sustaining Prince Eugene in case he should be attacked. On the 11th, upon advice that the Elector of Bavaria, as well as Tallard, had passed the Danube at Lawingen, and that they were encamped with their left wing at Lawingen and their right at Stein, Prince Eugene to secure himself retired in the night from Munster, where he was encamped, and posted himself on the other side the river Wernits near Donawert, having behind him the wood of Schellenberg. Being informed of this motion, the Duke of Marlborough marched his army in the night, with the 20 battalions under General Churchill, and came by eight o'clock in the morning to Donawert, and then marching with the army commanded by Prince Eugene they advanced both and encamped with their left wing at Munster near the Danube, their right wing reaching beyond the village of Appershoven as

far as the wood. On the 12th the generals would have advanced as far as Greinheim with their left wing, and their right to Schweinebagh, but the troops being too much fatigued they contented themselves to go and view the ground, allowing the army some rest. Thereupon the Duke of Marlborough and Prince Eugene advanced with the piquet towards Sweiningen, and being upon the height they began to discover the enemy's troops on the plain of Blenheim and before the mills between Greinheim and Onderklaw, and a little after they perceived a greater number and even some of their generals who came to view the ground.

Our generals being returned to our army ordered the necessary passages to be made, whereupon pioneers were sent near Thiffingen to make bridges of communication on a rivulet, which indeed was narrow but had high banks. The men were hardly at their work when the advanced guards of the enemy came as far as between Sweiningen and Thiffingen, and their hussars obliging our pioneers to retire as far as our advanced guard, which gave the alarm to our camp, the Duke of Marlborough returned that way with all the piquet, 7 squadrons of dragoons which were encamped before the quarter-general, and 5 English battalions of Row's brigade with the battalion of English guards, which were followed by a brigade of Hesse and a good part of the army, but being come to the rivulet where our pioneers had been repulsed they found that the enemy not only retired, but returned full gallop to their main army. Our advanced guard was reinforced and left under the command of a major-general, and the 2 brigades of foot, which were in the village of Thiffingen, were also left under the command of a like officer, who posted his men in the hedges thereabouts. We began to perceive that all the forces of the enemy were got together, being strongly encamped with their right wing near Blenheim and their left at Lutzingen, close by a wood. The word was given, "Anna." All the baggage of the army sent towards Donawert, near the village of Rietlingen, till further orders; bridges were laid on the river Kessel to march over the army, and all things made ready to march to the enemy. After this disposition, on the 13th, the drums beat the general about one in the morning, the assembly at half-past, and the march at two, and at three the army began to pass the river, marching on 8 columns over the bridges; to wit, the Imperialists in two columns with their infantry, each line apart, and took the right of all, having two columns of horse on their left. Our troops marched also on four columns, to wit, two of foot on the left of the Imperial cavalry, and two of horse on the left of all. Thus the whole army advanced on eight columns as far as the rivulet near Thiffingen, where passages were opened (letter A). The advanced guards were ordered to return each to their body, and the two brigades of foot which had been left in that village under the command of Major-General Wilks, and 15 squadrons which the Duke of Marlborough caused to be commanded out, formed together on the left a ninth column, and so we marched towards Sweiningen.

As soon as the nine columns were arrived between that village and the wood we made a halt (at the letter B), and we did not perceive that

the enemy's army made any great motion. The Duke of Marlborough and Prince Eugene, who had posted themselves on a rising ground (letter C), called to them all the generals that led the several columns to give them the necessary directions, in order to attack the enemy—it was then about six o'clock in the morning. Lord Cutts (lieutenant-general), St. Paul (major-general), and Brigadier Ferguson were detached with 20 battalions to support Major-General Wilks, who had orders to attack the two water-mills situated before the village of Blenheim, whereupon the enemy immediately burnt all the village of Onderklaw, as also the two water-mills (marked D) and the two farmhouses called the Hoeven, besides the villages of Wolperstette, Willer, Berghausen, and Schweinebagh, and fired two pieces of cannon to recall their foragers. After that they beat the general, then the assembly, and we began to see them come with their arms before their camp, their generals and adjutants galloping from one place to another. During this our columns advanced in the plain; four of ours marched to the left on the side of the village of Greinheim, and the four of the Imperialists took the right towards the village of Schweinebagh, leaving Wolperstette and Berghausen on the same hand. We viewed the rivulet which was between us and the enemy's army, and found that it would be difficult for the horse to pass it, because the water was standing on each side of the banks which were pretty high, and besides the ground was marshy to the right of Overklaw, as also between Onderklaw and the water-mills, but we were resolved to make the passage easy by the planks of our pontoons and fascines. The enemy brought all their cannon down on that side to fire on us, and so soon as Major-General Wilks began to approach the mills they fired furiously, and with some 20-pounders, to hinder us from approaching the marsh or the rivulet, which is called Haselaersbroeck—it was then eight o'clock. Thereupon we brought some pieces of cannon to the left of the village of Onderklaw on the great road to Hochstette, of which we formed two batteries, one English and one Dutch (E), and then cannonaded one another briskly, which did great damage on both sides, because the ground was level. Whilst the Imperialists advanced on their right the enemy employed all their batteries to cannonade them in their march. About eleven o'clock our army being in battalia in two lines, except some few squadrons which formed the body of reserve, we quickly made five bridges (F) with the planks of our pontoons, and repaired the bridge (marked G) on the high road which the enemy had destroyed, and the horse of the right wing were ordered to provide themselves with fascines. Prince Eugene being advanced so far as he thought necessary to fall on the enemy's left wing, orders were given for a general attack, and it was about one o'clock in the afternoon when it was begun. Major-General Wilks being advanced to the two water-mills made the first onset according to his orders, being supported by Lord Cutts; after which the cannon fired very briskly, which was a signal for the army to fall on, and so they advanced towards the enemy at that very instant. The infantry under Major-General Wilks soon took possession of the two mills, and that of the main body of the army posted them-

selves in the village of Overklaw, quite on our right wing near the rivulet between the limekilns, having the village of Overklaw before them, in which were several battalions of the enemy. But the Imperialists could not attack them so soon as we because the ground where they were in battalia was full of hedges and bushes, so that they could not charge till half an hour after us. The horse on the left wing did not pass the rivulet without difficulty, for they stood the fire of the enemy a full hour, having the village of Blenheim in their flank and the enemy's cavalry in their front, by whom they were at first repulsed. But as they were well supported they drove the enemy beyond the second rivulet, called Meulweyer, at the spring head (letter H) which is moorish, from thence to the hedges of the village. Our cavalry formed their body on the back side of the rivulet, sustaining all the while the great fire from the village, till at length the infantry began to line and cover them. The rest of the horse of our left wing, who were Danes and Hanoverians, passed the rivulet in the middle of the village of Onderklaw, and on the right of it, but the enemy attacking them they were quickly beat back again over the same rivulet; but our infantry sustaining them they rallied and charged a second time, which had no better success. But the third time, the Duke of Marlborough having himself brought up some squadrons (letter I), which were supported by some Imperial squadrons of the body of reserve, made them advance with some battalions beyond the rivulet, to drive the enemy's foot out of the village of Overklaw, from whence they galled our horse in the flank, whereupon the enemy began to retire. The Prince of Holstein Beck, major-general, who was quite on the right of our foot, attacked also the village of Overklaw. But as the Imperial cavalry was above two musket shot from him, he had hardly passed the rivulet with three or four battalions but eight or nine out of the village fell on them so suddenly, before the regiments were formed, that that of Goor, which was on the right wing (K), was entirely defeated, and the Prince of Holstein Beck desperately wounded and taken prisoner. On the right wing the enemy drove back the Imperial troops above a hundred and fifty paces beyond the place where they had formed themselves in battalia, and Prince Eugene returning to the charge had the misfortune to be repulsed three several times with loss. On the other hand, the left wing advanced and obliged the horse of the enemy's right wing to retire from the village of Blenheim, where there were twenty-seven of their battalions and twelve squadrons of dragoons, who fortified and defended themselves as well as they could, so that General Churchill was obliged to come and assist Lord Cutts and Major-General Wilks to force that post, all at once marching for that purpose along the rivulet and leaving our cavalry which bravely fought on the right. At last the enemy's right wing of horse being repulsed found in their flight the Danube behind them, into which several squadrons cast themselves, and were most of them drowned. Marshal Tallard was taken prisoner on the banks of that river (L), otherwise he would have been forced to take the same way with his squadrons. In the body of the enemy's army two brigades of infantry (M), consist-

ing of eight battalions, and supported by their horse, made some resistance, being drawn before their tents, which were then standing. But as our horse had beaten the squadrons of the enemy's right wing, those who were in the centre, fearing to be enclosed, made a sudden retreat; so that these two brigades (M) finding themselves cannonaded and surrounded by two battalions, and two or three lines of our horse, endeavoured to retire by the way of Blenheim, but they were entirely cut to pieces, except the prisoners, who were almost all wounded. Seeing that things did not go so well on our right wing as on the left, and that the Prince of Holstein Beck was repulsed at the village of Overklaw, the Duke of Marlborough, with admirable presence of mind, thought it proper to cause the victorious troops of the left wing to halt, and to draw down some squadrons and battalions to take the enemy in the flank at Overklaw; but before they were come there we had advice that Prince Eugene had attacked the enemy the fourth time with good success, and that they retreated, setting fire to the villages of Overklaw and Lutzingen. Thereupon our left wing fell on again and drove some of the enemy's infantry into the Danube and took several pieces of cannon, which towards the end of the battle they carried away under a guard, with a design to save them. Our cavalry having pursued the enemy to the defile at Hochstette (N), the Duke of Marlborough thought it was time to stop his troops, because night came on. Prince Eugene on his side pursued the left wing, which retired through the wood behind the village of Lutzingen, and the cavalry on the side of Morslingen, where the Prince stopped also. In the meantime the twenty-seven battalions and the twelve squadrons which were in the village of Blenheim, defended themselves still, and did not surrender themselves prisoners of war till about eight at night. We reckon that the enemy's forces consisted of 87 battalions and 150 squadrons, and that they had about 90 pieces of cannon, of which some were 24-pounders; and as for our army, it consisted of 66 battalions and 181 squadrons, with 52 pieces of cannon. The enemy having passed the defile before mentioned posted themselves some time with their right wing in the churchyard at Hochstette, and the left at Danalte (letter P) and then retired by favour of the night to Lawingen. Our troops drew up in the dark along the morass before mentioned, the left wing on the Danube near Sonderen, and the right wing by Nederveningen (letter Q). On the 14th our army encamped the left wing in the village of Stein and the right at Wittenslingen, and we saw the troops file off to the camp, almost all the regiments having still their colours, standards, and kettle-drums. We took above 13,000 men prisoners, 1,500 of whom were officers, and among them 17 general officers, 49 pieces of cannon, 36 whereof were taken by the Duke of Marlborough and 13 by Prince Eugene, and a hundred standards, colours, and kettle-drums.

DESCRIPTION OF THE STANDARDS AND COLOURS CAPTURED AT THE BATTLE OF BLENHEIM.[1]

Standards or Ensigns for Horse.

1 Standard.

Dexter - Blue; a sun in full splendour, of gold, embroidered, and an embroidered border of gold and silver. The motto torn off.

Sinister - Green; a coat of arms with a ducal embroidered coronet over it, silver. The field azure, a crescent argent surrounded with seven billets of the second.

3 Standards.

Dexter - Blue; powdered with gold *fleurs-de-lys* embroidered.

Sinister - Blue; a sun in full splendour. Gold embroidered.

Note.—Captured by Anspach Schmettau Dragoons.[2]

2 Standards.

Dexter - Crimson; swallow-tailed, powdered with *fleurs-de-lys* of gold embroidered. In the middle a double escutcheon, one the arms of France, the other a quartered coat. An Imperial Crown of gold over both.

Sinister - Exactly the same.

Note.—One of the above surrendered to Brigadier Webb.[3]

4 Standards.

Dexter - Crimson; a sun in gold full displayed (the face of one torn off), under it a snake on the ground salient to the sinister part, a border of gold and silver, embroidered.

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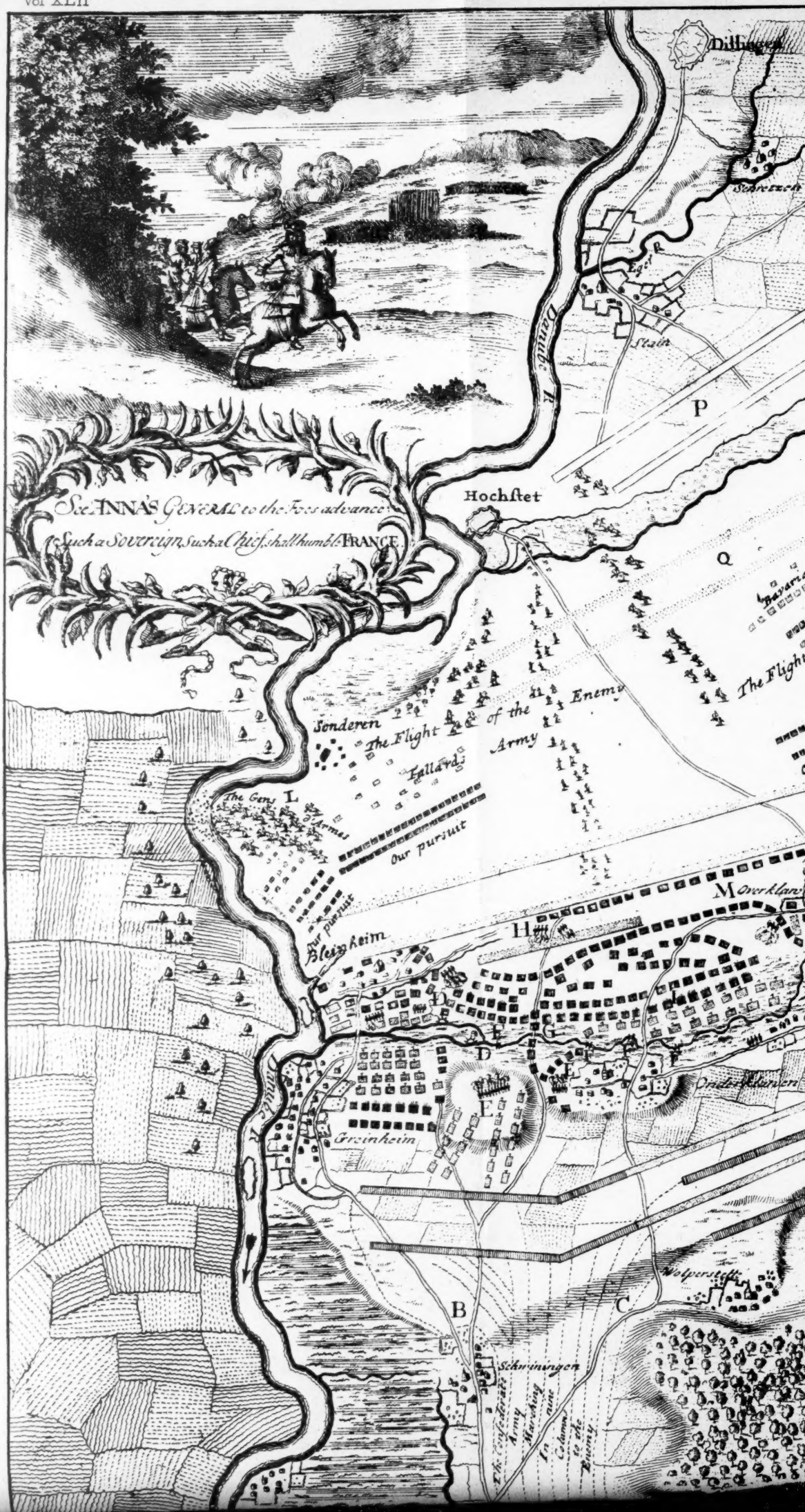
[1] From an original MS. at the Public Record Offie (*Ordnance Warrants*, Vol. XLIX., pp. 386 *et seq.*). The following letter annexed to the MS., from Robert Harley, Secretary of State, to Lord Granville, Lieutenant-General of the Ordnance, written in December, 1704, explains the *raison d'être* of the above list:—"My Lord, I understand that the Colours and Standards taken at the battle of Blenheim will be brought to the Tower before they are set up in Westminster Hall, where, when they are once fixed, it will be very difficult to have an account of the mottoes, or the devices. I find they have been formerly preserved in writing when the like happy occasions have happened. Therefore, if you have not already given directions, I entreat the favour [from your] Lordship to order some proper person in the office of Ordnance to take an exact account in writing of all the said colours and standards, and that you will please to transmit it to my lord. (Signed) Ro. Harley."

[2] A Prussian corps. Baron Schmettau was sent by the King of Prussia to the Court of St. James, as Resident, in 1710.

[3] John Richmond Webb, who received the thanks of Queen Anne and Parliament for his victory over the French at Wynandael, near Lille, in 1708. He was granted a pension by the Queen 27th March, 1709, of "£1,000 per annum for 99 years, if the Queen live so long."—"Appendix to the 30th Report of the Master of the Rolls," p. 477.


Dillingen
Donau R.
Hochstet
See ANNA'S GENERAL to the Foes advance
Such a Sovereign Such a Chief shall humble FRANCE
Sonderen
The Flight of the Enemy Army
Tallard
The Gens d'Armes
Our pursuit
Our pursuit
Blenheim
Oberglauheim
Unterglauheim
Greinheim
Schminingen
Wolpertstetten
The Confederate Army Marching in Column to the Enemy
A
B
C
D
E
F
G
H
L
M
P
Q

Donalen
P
Morsingen
Overveningen
Nederveningen
Q
Horse
Enemy
O
Lutzingen
Our Pursuit
K
Litzheim
Schweinebagh

J. J. KELLNER & Co LITHO. LONDON

ORDER of

Of the CONFEDERATE A
to the ENEMY, the 13t

The Duke of MARLBOROUGH, Captain-General of the Queen of Great Britain's Forces.

Generals :—Prince of HESSE, General of the Horse. CHURCHILL. Prince of ANHALT

Lieut.-Gens. :—LUMLEY. Hompesch. D. of Wirtemberg. Lord CUTTS. Ingolsby. H

Major-Gens. :—WOOD. Aurox. Schoulenbourgh. Erbagh. Noyelles. Rantzau. WITHE

Brigadiers :—Ross. BALDWIN. Rantzau. Ferguson. Row. Hulsen. Wulwen H

HORSE.

First Line

Dragoons.

Royal Scotch
Royal Irish
Erb Pr. de Hesse Drag.

Lumley
Cadogan
Schomberg
Wintham
Wood
Schuilembourgh
Erlach
Baldwin
Goeden
Anspach Drag.
Spiegel
Leib Regt. de Hesse
Voight
Noyelles
Leib Regt., Hannover
Rantzau Gr. Major
Smettau
Rantzau Brigad.
Leib Regt., Danish
Wirtemb. Oels. Drag.

Dragoons.

Luc
Dubreul
d'Herleville
Garde Hannover
How
Ingolsby
Matlebourgh
Row
North
Darley
Pergusson
Hamilton
Orkney
English Guards

Pr. de Hesse
Grenad. de Hesse

Generals :—Count de LATOUR, General of the Horse. His

Lieut.-Gens. :—BULOU. Count of Oost-Friese. Lord ORKNEY. Prince of BAREITH.

Major-Gens. :—VILLERS. Prince of Hesse Hombourg. Wittinghoff. Luc. Rantzau.

Brigadiers :—Bottman. Grevendorff. Brockdorff. WEBB. Hulsen. Seckendorff.

2nd Line

Bulou Drag.
Villers Drag.
Bottmer Drag.
Grevendorff Drag.
Saxon Heilbourg
Bannier
Hardenberg Drag.
Erlach Hesse
Aurox Drag.
Brockdorff
Alefelt
Dewitz
Utterwiek
Wirtemb. Oels. Drag.

Webb
Meredith
Churchill
Garter Hannover
Hulsen
Gauwin
Tossin
Scheping
Soudrad
Wartensleben
Seckendorff
Sterfelt
Herman
Grenad. de Wirtemb.
Rantzau
Teckelbourgh
Berendorff
St. Paul

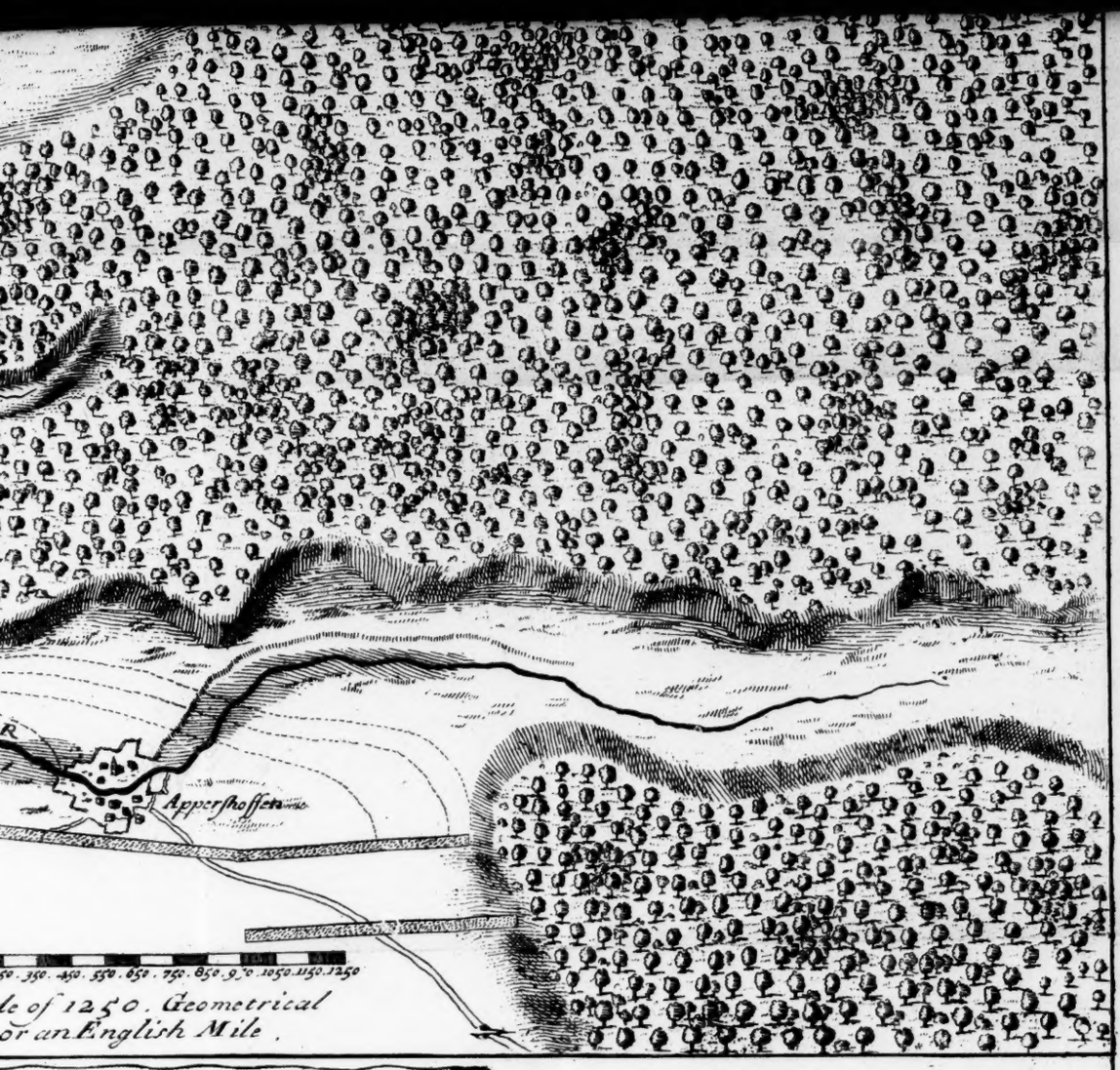
Marq. Philippe
Lottem
Oanit

Body of RESERV

Osten
Leuteth
Morheim
Bareuth

TOTAL.

		Squadrons	Battalions
First	LINE	90	38
Second	LINE	75	29
Body of Reserve		16	
		181	67



# of BATTLE

ARMY as they marched up
13th August, 1704, N.S.

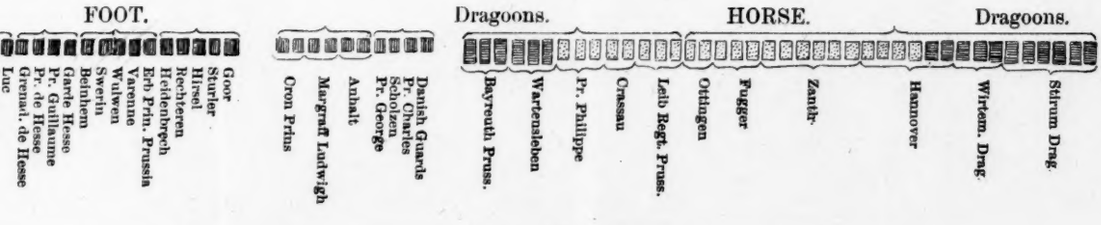
s. Prince EUGENE of Savoy, Field-Marshal of the Emperor's Armies.

ALT d'Essau. Prince of HANNOVER, General of the Horse.

. HORN. Scholzen, Pr. of Holstein Beck. Prince DOURLAGH.

THERS. Herleville. Wilkins. St. Paul. Finck. Nazemer. Count FUGGER.

Heidenbregh. Bielck.

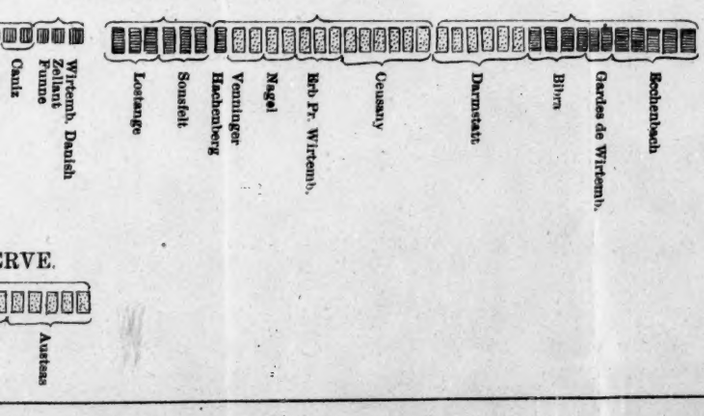


His Highness the Duke of WIRTEMBERG, General of the Horse.

. Marquis de CUSANI.

n. Palant. Bibra. Count CARAFFA.

ff. Berensdorff. Caniz Rebsdorff.



ERVE.

Motto - - Arduus ad solem.

Sinister - Crimson bordered as the other; a sun (only) in full splendour of gold embroidered.

Motto - - Nec pluribus impar.

Note.—One of the above was captured by the Regiment de Bothmar.[1]

1 Standard.

Dexter - Crimson; swallow-tailed with gold sprigs and thunder-bolts, a grenade shell lying on the ground with the motto "Connensus (*sic*) [Concussus] surgo"; and a decayed tree with a young sprout out of the upper part, and fruit. Motto: "Adhuc spes durat avorum."

Sinister - Blue; with gold sprigs and thunder-bolts as the other side. A sun in full splendour.

Motto - - Nec pluribus impar.

Note.—Captured by General Churchill.[2]

1 Standard.

Dexter - Crimson damask; a sun in full splendour, of gold, painted; a flowered border, and in the four corners the letters ℑ𝔈 with a ducal coronet over each.

Motto - - Nec pluribus impar.

Sinister - Crimson damask; a silver cloud and out of it a hand of the same holding a rocket breaking into stars, all painted, not embroidered.

Motto - - Poco duri purchè s' inalzi.

1 Standard.

Dexter - Crimson silk; in a globe, embroidered with silver and gold, an eagle, black and gold, taking its flight surrounded with thunder darted to it.

Motto - - Audentior.

Sinister - Crimson; a sun in glory, gold.

Motto - - Nec pluribus impar.

Note.—Captured by Brigadier Rointein's Regiment.[3]

1 Standard.

Dexter - Crimson damask; plain, with a pretty long fringe round it of crimson and white.

Sinister - The same.

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[1] A regiment of Hanoverian dragoons commanded by Brigadier Bothmar, brother to the baron of this name, who was sent as envoy to the English Court by the Elector of Hanover.

[2] Charles Churchill, General of the Foot, brother to Marlborough. Died in 1710.

[3] This corps is not mentioned in the "Marlborough Dispatches."

1 Standard.

Dexter - White damask; a sun of orange and gold tissue. Gold embroidery in the corners.

Motto - Nec pluribus impar.

Sinister - White damask; a device of the upper part, an infant lying on the ground, branches of trees or reeds behind it on the sides as ornaments; the upper part of an angel each side. Gold embroidery on the corners.

Motto - Jovis obruit hostes.

Note.—This standard belonged to the Gens d'Armes Noailles.[1]

3 Standards.

Dexter - Blue silk; swallow-tailed, powdered with *fleurs-de-lys*, gold.

Sinister - White silk; on it "Victoria pinget."

1 Standard.

Dexter - Crimson; embroidered with gold and silver. A landscape with an eagle rising towards the sun issuing out of the clouds.

Motto - Ingenito solem veneratur amore.

Sinister - Blue; embroidered as the other side, with a sun in full splendour, gold and laurelled.

Motto - Nec pluribus impar.

1 Standard.

Dexter - Crimson; the border embroidered with gold and silver, a *fleur-de-lys* in each corner. A landscape, and over it a grenade breaking in the air.

Motto - Alter post fulmina terror.

Sinister - Exactly the same with the like motto.

Note.—This standard belonged to Gens d'Armes No. 4.

1 Standard.

Dexter - Blue; embroidered with gold and silver with trophy of arrows. In the middle an eagle on her nest, on a rock, with wings spread, in proper colours of silk.

Motto - In regnum et pugnas.

Sinister - Exactly the same with the like motto.

1 Standard.

Dexter - Crimson; embroidered with gold and silver; the sun in full splendour, gold. The motto torn out.

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[1] The gens d'armes at Blenheim are said to have been "the pride and flower of the French Army." Five squadrons of British cavalry engaged five squadrons of gens d'armes during the attack on the village of Blenheim and routed them, but pursuing too far were charged by fresh squadrons of French cavalry and obliged to retire in disorder. The Marshal Duke of Noailles signalised himself in the War of the Spanish Succession, and died in 1708.

Sinister - Crimson; the border embroidered, gold and silver; an eagle standing on a rock with wings spreading. The motto torn out. Twelve staves, with no more silk about them but what covers the staves.

Number of standards in all, 34.[1]

ENSIGNS OR COLOURS FOR FOOT.

Eight Colours: White, plain.

Ten Staves covered with silk.

One Colour: A white cross from side to side, the quarters fillamote, blue and crimson.

One Staff covered with silk.

One Colour: Crimson, with a white cross from side to side, and a cross patee cornerwise.

Two Colours: A white cross flowered with *fleurs-de-lys* of gold, painted, the quarters murrey and fillamote.

Two Colours: The same, without *fleurs-de-lys* in the cross.

One Staff covered with silk.

One Colour: A white cross, the corners or quarters plain; crimson and blue counter-charged.

One Staff covered with silk.

Four Colours: A white cross, the quarters of white, blue and black wavy.

Three Staves covered with silk.

One Colour: A white cross, on it a defaced crowned head and motto, "Mirabiles," etc., defaced; the ensign bordered red and yellow chequey.

Three Colours: A white cross, the quarters red, blue and yellow wavy.

Five Staves: Yellow and red wavy.

Four Colours: A white cross, the corners or quarters white and green.

One Staff: Green and white wavy.

Nine Staves: Wavy of green, white and orange.

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[1] The number of standards taken at Blenheim is said to have been 171 (*United Service Journal*, 1844, part I., p. 581), but only 34 fell to the share of the British army, the remainder being distributed among the confederate troops which had taken part in the battle. On 30th October, 1711, we find Marlborough writing to the Dutch General (Fagel) instructing him "to draw lots with General Cadogan, or General Lumley, for the flags captured at Bouchain, and to leave the Queen's share at Ghent."—"Marlborough Dispatches," Vol. V., p. 558.

Four Colours: A white cross, the quarters of white and crimson lozenges.

Two Colours: A white cross, the quarters pyley of crimson and white.

Two Colours: White and blue cheque, with a globe painted in the middle.

Nine Colours: A white cross powdered with gold *fleurs-de-lys*, and the arms of Navarre in the cross; the quarters plain fillamote.

Two Staves covered with silk.

Two Colours: A white cross with a hand issuing out of a cloud holding a sword, the handle garnished with *fleurs-de-lys* and a motto, "In lilliis fortior"; the quarters parted bendways with green and flesh-colour, bordered with crimson indented.

Four Colours: A white cross bordered with yellow, the quarters crimson, and a yellow bend.

Two Colours: Chevroney of white and blue, bordered with chequey of red and yellow.

One Colour: White, the sun displayed in the centre of gold, painted.

Two Colours: A white cross, the quarters crimson, a border engrailed and bend wavy blue.

Five Colours: A white cross, the quarters bendy and wavy crimson and blue.

Two Staves covered with silk.

Two Colours: A white cross, the quarters party per bend crimson and blue, bordered with orange wavy.

One Colour: A saltire raguled crimson, with a motto of gold painted, "Pugnate pro Deo ac Rege." A Crown Royal of gold over the centre of the cross; the quarters parted per cross white and blue. A white border, with pales wavy yellow, red and blue.

Six Colours: A white cross, the quarters plain yellow and blue.

One Colour: A white cross, the quarters yellow and pearl.

One Colour: Blue, with a globe in the centre and four coronets of cyphers in the four corners; a wavy pyle border of white.

One Colour: A white cross, the quarters murrey and fillamote.

One Colour: A white cross quarter, a stripe of yellow between green.

One Colour: A white cross, the quarters fillamote and murrey.

Eight Staves: The colours not to be distinguished.

Note.—There are very few of the Ensigns but are something torn, most of them very much; and that the Staves have only as much silk about them as covers the staff, and some not enough.

In all: Colours, 83; Staves, 47; Total, 130.[1]

[1] On the 3rd of January, 1705, the Blenheim standards and colours, which had arrived with Marlborough from Holland, on 14th December, and had been temporarily placed in the Tower, were carried in procession from the Tower to Westminster Hall through the City, and thence by way of the Strand, Pall Mall, and St. James's Park, where the Queen viewed the procession from Lord Fitzharding's house ("Complete History of Europe, 1705," p. 7). The procession consisted of a troop of the Horse Grenadier Guards, followed by three troops of the Horse Guards, "then 34 gentlemen each carrying a standard taken from the enemy, and lastly a battalion of the Foot Guards, the pikemen to the number of 128 each bearing aloft in the place of his pike one of the enemy's colours" (Earl Stanhope's "History of England, 1701-1713"). The plaudits of the populace on the line of route, and the booming of cannon, celebrated the glorious triumph of British arms. It is sad to have to record the fact that none of the standards and colours which are described above have escaped the destroying hand of Time. Their last resting place was in St. Paul's Cathedral, and on 2nd November, 1835, the Rev. Sydney Smith (the Canon) in a letter to General Sir Herbert Taylor, on the subject of the Blenheim colours, said *not a rag, not a staff remained!—United Service Journal*, 1844. Part I., p. 581.

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made: Captains—The Honourable Stanley C. J. Colville, C.B., to "Barfleur"; H. T. Grenfell to "Vivid" for R.N. Barracks at Devonport; R. W. Craigie to "Cambridge." Commanders—C. H. Dare to "Archer"; R. H. Peirse to "Barracouta."

The second-class cruiser "Rainbow," commissioned at Devonport on the 3rd ult., has left England and arrived at Malta where she will be paid off into the Reserve, and undergo repair and refit. The third-class cruiser "Blonde" paid off at Devonport on the 10th ult. The third-class cruiser "Cossack" arrived at Plymouth on the 17th ult., and has since proceeded to Chatham where she will pay off. The first-class cruiser "Crescent" paid off at Portsmouth on the 26th ult., and the second-class cruiser "Pique" on the 9th ult. at Devonport.

A small squadron, consisting of the port guard-ships, viz., the "Nile," "Trafalgar," "Sans Pareil," and "Thunderer" has been ordered to Bristol on the occasion of the meeting of the British Association. The squadron, which is under the command of Captain J. H. Bainbridge of the "Nile," who has been temporarily ordered to fly the broad pennant of a second-class commodore, left Portland on September 2nd and anchored two miles from Portishead on September 5th. The torpedo-gunboat "Spanker," Lieut.-Commander H. L. Bethune, has been attached to the squadron as despatch-vessel. The ships will remain off Bristol until September 15th, when they will leave on a cruise, calling at Dublin, Liverpool, and Glasgow. The squadron will arrive at Plymouth on October 12th, when the ships will disperse to their respective stations.

The new first-class cruiser "Diadem" has been carrying out a series of trials before joining the Channel Squadron, as arranged by the Admiralty. The first trial was a run of 60 hours at one-fifth her natural power, and though it was expected that this would not exceed 3,300-I.H.P., the actual mean of the 60 hours' run was 3,565. The Admiralty stipulated that the steam expended in the auxiliary engines in use during the trial should be measured; but it was found that with twelve out of the thirty boilers in use, ten being devoted to the main engines and two to the auxiliary machinery, an adequate supply of steam for all purposes was obtainable, and the trial, during which a mean speed of 12¼ knots was maintained, was regarded as highly satisfactory; to ensure these results only sixty-seven revolutions a minute were required, and the coal consumption for all purposes worked out at 2·36 lbs. per unit of power per hour. The second trial was also for 60 hours at half her full power, and although the coal was small and dirty it was highly satisfactory. The results were as follows:—Draught of water forward 25 feet 5 inches, aft 27 feet 7 inches; the steam in boilers was 275 lbs., and the vacuum 27 feet ½ inch; with a total I.H.P. of 8,510·4, and 92·3 revolutions, the vessel maintained a mean speed of 16·8 knots; the coal consumption was regarded as economical, having regard to the quality of the fuel, and worked out at 2·01 lbs. per unit of power per hour. The third trial also for 60 hours was at three-fourths her full power, with the following results:—Draught of water, 25 feet forward and

27 feet 6 inches aft; the steam pressure in the boilers was 270 lbs. to the square inch with a vacuum of 27 inches starboard and 26·8 inches port; the mean collective I.H.P. for the 60 hours was 12,791, with 105·3 revolutions starboard and 105·6 port; in consequence of the inferior quality of coal, due to the strike, the consumption was slightly in excess of what was expected, but in spite of the poor quality of fuel the mean speed was 19·3 knots; for the purposes of the trial the ship travelled to Cape Finisterre and back, and a perfect calm was experienced in the Bay of Biscay. The ship has still to carry out another trial at full speed.

The first-class cruiser "Terrible" has also concluded two very successful 60 hours' trials, the first at three-fifths (15,000-I.H.P.) her full power, and the second at 18,000-H.P. At the first trial, in spite of the indifferent character of the coal, the vessel, favoured by what little wind there was, maintained a speed of 20 knots on the run to the westward, but there was a falling-off in speed on the return journey, owing to the head wind. The official report, however, shows that every expectation was fully realised. The draught of water forward was 26 feet 7 inches; aft, 29 feet 4 inches; steam in boilers, 222 lbs.; vacuum, 25·5 inches starboard and 25 inches port; revolutions, 93·81 starboard and 98·51 port; total I.H.P., 15,554·4; speed 19·6 knots; coal consumption for all purposes, 1·96 lbs. per unit of power per hour. During the trial the ship showed remarkable steadiness, and had there been a better quality of coal on board the results would have been even more satisfactory. Nevertheless, the speed for the 60 hours, with 15,554-I.H.P. was only one knot less than was realised at the 30 hours' contract trial with 18,500-I.H.P. During the first half of the second run, the ship encountered a stiff head breeze, but on the homeward run the wind was in her favour. In consequence of the bad quality of the coal, the consumption was in excess of expectations, but in other respects the trial was highly satisfactory. The results were as follows:—Steam in boilers, 233 lbs.; vacuum, 25·2 inches starboard, 25·1 inches port; revolutions, 98·27 starboard, 98·5 port; I.H.P., 18,515; draught, 27 feet 5 inches, forward; 29 feet 6 inches, aft. The engines worked very smoothly. When running against the wind for the first 30 hours the speed was 20·1 knots, and with the wind 20·5 knots. The ship has coaled in readiness for further trials.

The new second-class cruiser "Vindictive" has completed her steam trials successfully. The first 30 hours' run was to find out the coal consumption with the engines developing 2,000-I.H.P. On the run from the Nore to Portland and back the engines and water-tube boilers did not give the slightest trouble, while the results, as regards both the speed obtained and the coal consumed, were regarded as satisfactory. The official details are as under:—Draught of water—forward 20 feet, aft 22 feet 2 inches; speed of ship, 12·6 knots; steam pressure in boilers, 208 lbs. per square inch; vacuum in condensers—starboard 25·9, port 25·4; revolutions per minute—starboard 84·4, port, 84·8; mean I.H.P.—high, starboard 325, port, 325; intermediate, starboard 386, port 385; low—starboard 360, port 372; total—starboard, 1,071, port, 1,082—grand total, 2,153. The total consumption of coal was 139,610 lbs., which worked out at 2·16 lbs. per I.H.P. per hour. The second 30 hours' run was to test the coal consumption at 7,000-I.H.P.; the trials were a thorough success, the coal consumption being very economical when compared with the results obtained in sister-ships. The official details were:—Draught of water forward, 19 feet 8 inches, aft 22 feet; speed of ship, 17·7 knots; steam pressure in boilers, 263 lbs. per square inch; vacuum in condensers, 25·7 starboard, 25·1 port; revolutions per minute, 125·4 starboard, 125·4 port; mean I.H.P.—high, 1,178 starboard, 1,277 port; intermediate, 1,247 starboard, 1,256 port; low, 1,160 starboard, 1,046 port—total, 3,585 starboard, 3,579 port; grand total, 7,164; coal consumption, 1·83 lbs. per I.H.P. per hour. Her final trial (eight hours at full power) was also satisfactory. The official details were as follows:—Draught of water, 18 feet 11 inches forward, 21 feet 3 inches aft; speed of ship, 20·1 knots; steam pressure in boilers, 278 lbs. per

square inch; air pressure in stokeholds, 0·2 inch; vacuum in condensers, 26·0 starboard, 25·4 port; revolutions per minute, 138·6 starboard, 139·2 port; mean I.H.P., 5,041 starboard, 5,221 port—grand total, 10,262. The Admiralty stipulations were 19 knots, with 10,000 steam power. The results were obtained easily, and could have been increased if desired, notwithstanding the heavy wind and rough sea. The Belleville water-tube boilers maintained an ample supply of steam, and the engines worked with the utmost smoothness, there being no trace of a heated bearing throughout the trial.

The new torpedo-boat destroyer "Ariel," built and engined by Messrs. John I. Thornycroft and Co., Chiswick, has completed a highly satisfactory full-speed trial, the results being as follows:—Draught of water, forward, 5 feet 10 inches; aft, 7 feet ½ inch; speed—mean of six runs on the measured mile, 30·820 knots; mean speed for three hours, 30·594 knots; air pressure in stokeholds, 3 inches; vacuum in condenser, 24·1; revolutions per minute, 399, starboard engine; revolutions per minute, 394·4 port engine; I.H.P., 3,156, starboard engine, 2,987, port engine; total I.H.P. 6,143. The "Cheerful," a new torpedo-boat destroyer, built and engined by Messrs. R. and W. Hawthorn, Leslie, and Co. (Limited), has also run her full-speed trial off the Tyne, when a speed of 30·64 knots was attained on the mile course, and a speed of 30 knots for the three hours. The vibration was slight, and the steaming and manœuvring powers of the vessel and the working of the machinery were excellent. The dimensions of the "Cheerful" are 200 feet by 21 feet by 12 feet 6 inches, and she is fitted with four boilers of the Thornycroft type.

The four gun-boats "Bramble" and "Britomart," building by Potter and Co., Liverpool, and the "Dwarf" and "Thistle," by the London and Glasgow Shipbuilding Company, Glasgow, are to be sent to Devonport for their steam trials and to be got ready for sea service, after they leave the builders. As they were only recently laid down, they are not expected at Devonport until early next year. They are of a distinctly new type, the only gun-boats resembling them in any way being those of the "Lapwing" class, which were built about ten years ago. The "Bramble" class will have a length of 180 feet, a beam of 33 feet, and with a mean-load draught of 8 feet, will have a displacement of 700 tons. They will each be fitted with water-tube boilers capable of driving their triple-expansion engines at 900-I.H.P. with the natural draught, and 1,300 with the forced draught. The armament will consist of two 4-inch and four 12-pounder Q.F. guns and two Maxim machine guns. Although the new gun-boats are longer by 25 feet and broader by 2 feet than the "Lapwing" class, their draught is lighter by 4 feet, so that they are specially suited for service in rivers where navigation with vessels of ordinary draught is impossible. Notwithstanding the new type of engines and boilers designed for these ships, they will only be able to attain a speed of 13½ knots an hour, a speed which was easily attained by vessels of similar displacement built twenty years ago. It is, however, claimed that speed has, in this case, been sacrificed to efficiency in fighting equipment, and that a high rate of speed is not only not required, but it is not desirable for a vessel employed in river service.

Before leaving on their late cruise the battle-ships of the Channel Squadron were fitted with a new torpedo defence net that is impenetrable against any torpedo, even when the latter is armed with a cutter. Although much heavier than the old net, the new defence gear is so arranged that it can be handled quite as easily as could the lighter one. Each net is 25 feet wide and 28 feet deep, weighs 17½ cwt., and contains 16,000 wire meshes. Each mesh is secured by six small rings, and these, combined with the small size of the mesh, render it practically impossible for a cutter to make any impression upon the net, even should one or two of the rings be broken by the weapon's impact. In order to better protect the ships the nets have been carried further fore and aft in the "Majestic" and "Prince George," so as to protect completely the vessels' hull. This mode of fixing had been tried

on the "Mars" with complete success. All the new battle-ships and first-class cruisers are to be given the new defence net.

The new battle-ship provided for in this year's Estimates, which is shortly to be commenced at Portsmouth, is to be named the "London," which is an old name in the Navy, dating back to the days of the Commonwealth. She will be of similar dimensions to the "Formidable," now building at Portsmouth, but her armour belt will be carried right up to the stem, only the after part of the vessel being left unarmoured. A sister-ship to be laid down at Chatham Dockyard has been named the "Venerable," after the famous old seventy-four, Lord Duncan's flag-ship at Camperdown; while a third battle-ship of the same type, which is to be laid down on No. 3 slip at Devonport Dockyard in January next, is to be called the "Bulwark."

The additional first-class cruiser to be built by Messrs. Vickers, Sons, and Maxim, Barrow-in-Furness, is to be named the "Euryalus," and the one ordered from the Clydebank Shipping Company, Glasgow, will be called the "Bacchante." Both will be similar to cruisers of the "Cressy" type.—*Times* and *Naval and Military Record.*

A Parliamentary paper was issued in July containing a return showing the fleets of Great Britain, France, Russia, Germany, Italy, the United States of America, and Japan, distinguishing the various types of vessels built and building. The return shows the date of launch, displacement, and armaments, reduced to one common scale. It will be observed that this year the return includes for the first time the fleet of Japan. The last time the return was issued was in November, 1896. Vessels which appeared on March 31st, 1898, in the official list of each Navy as built or building are enumerated, including under the latter head those for which on that date money had been appropriated and which were shortly to be laid down. The following tables exhibit the total number of vessels in each class belonging to each nation:—

Vessels Built.

———	Great Britain.	France.	Russia.	Germany.	Italy.	United States.	Japan.
Battle-ships	52	27	12	17	15	5	3
Cruisers, Armoured	18	9	10	3	3	2	1
,, Protected	95	30	3	7	15	14	10
,, Unprotected	16	16	3	21	1	10	8
Coast-Defence Vessels, Armoured	15	14	15	11	—	20	3
Special Vessels	3	1	5	1	2	1	—
Torpedo-Vessels	35	13	17	2	15	—	1
Torpedo-boat Destroyers	50	—	1	—	—	—	—
Torpedo-boats	98	211	174	113	142	8	44

Vessels Building.

———	Great Britain.	France.	Russia.	Germany.	Italy.	United States.	Japan.
Battle-ships	12	8	6	5	2	8	3
Cruisers, Armoured	8	10	1	2	2	—	6
,, Protected	24	10	3	8	3	1	6
,, Unprotected	—	—	—	—	—	—	1
Coast-Defence Vessels, Armoured	—	—	1	—	—	—	—
Special Vessels	—	—	—	—	—	—	—
Torpedo-Vessels	—	2	—	—	—	—	—
Torpedo-boat Destroyers	46	8	28	1	1	20	8
Torpedo-boats	—	38	—	9	2	22	12

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Torpedo-Vessels	35	13	17	2	15	—	1
Torpedo-boat Destroyers	50	—	1	—	—	—	—
Torpedo-boats	98	211	174	113	142	8	44

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	Great Britain.	France.	Russia.	Germany.	Italy.	United States.	Japan.
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Coast-Defence Vessels, Armoured	—	—	1	—	—	—	—
Special Vessels	—	—	—	—	—	—	—
Torpedo-Vessels	—	2	—	—	—	—	—
Torpedo-boat Destroyers	46	8	28	1	1	20	8
Torpedo-boats	—	38	—	9	2	22	12

The return is, to a certain extent, misleading, as there is no attempt at classification, a third-class battle-ship like the "Neptune," for instance, being placed in the same list with the "Majestic"; while the supplemental programme proposed by Mr. Goschen in July, and approved by the House of Commons, adding 4 battle-ships, 4 cruisers, and 12 torpedo-boat destroyers to the building programme, is of course not included.

In the subjoined table we give the number of ships of the principal classes, built, building, and proposed to be laid down during the present financial year (our own supplemental programme being included), compared with those of France and Russia :—

First-class Battle-ships :—	Built.	Building and to be laid down.	Total.
Great Britain	29	16	45
France	15	5	20
Russia	7	11	18

Great Britain has therefore 45 first-class battle-ships built, building, and to be laid down, as against 38 for France and Russia.

Second-class Battle-ships :—	Built.	Building and to be laid down.	Total.
Great Britain	10	0	10
France	10	1	11
Russia	6	0	6

Great Britain has therefore 10 second-class battle-ships as against 17 of France and Russia.

First-class Armoured Cruisers (effective):—	Built.	Building and to be laid down.	Total.
Great Britain	9	12	21
France	6	10	16
Russia	6	4	10

Giving Great Britain 21 to 26 of France and Russia of this class.

First-class Protected Cruisers :—	Built.	Building.	Total.
Great Britain	13	8	21
France	4	4	8
Russia	0	0	0

Giving Great Britain 21 to 8 of France and Russia of this class.

Second-class Cruisers :—	Built.	Building.	Total.
Great Britain	49	5	54
France	16	2	18
Russia	3	6	9

Giving Great Britain 54 to 27 of France and Russia of this class.

Third-class Cruisers :—	Built.	Building.	Total.
Great Britain	36	10	46
France	10	3	13
Russia	13	0	13

Giving Great Britain 46 to 26 of France and Russia, and a grand total of cruisers of all classes of 142 to 87 of France and Russia.

Torpedo-boat Destroyers :—	Built.	Building.	Total.
Great Britain	81	27	109
France	0	8	8
Russia	1	28	29

Giving Great Britain 109 torpedo-boat destroyers as against 37 of France and Russia.

First-class Gun-boats and Torpedo-Vessels :—

	Built.	Building.	Total.
Great Britain	52 ...	4 ..	56
France	17 ...	2 ...	19
Russia	17 ...	0 ...	17

Giving Great Britain 56 first-class gun-boats and torpedo-vessels as against 36 of France and Russia.

The above list has not taken into account the third-class battle-ships and coast-defence ships of the three countries, or any cruisers built of wood only.

FRANCE.—The following are the principal promotions and appointments which have been made : Vice-Admirals—E. P. A. Barrera to be Maritime Prefect of the 2nd Arrondissement Maritime (Brest) ; F. E. Fournier to command of the Active Squadron of the Mediterranean Fleet ; C. Sallandrouze de Lamornaix to command of the Squadron of the North ; E. Humann to be an Inspector-General of the Navy. Rear-Admirals—G. A. Roustan to command of 2nd Division of the Active Squadron of the Mediterranean ; A. P. Bienaimé to command of the Superior School of the Navy ; J. J. Nabona to be a Member of the Naval Council of Works ; C. Aubry de la Noë to be Chief of the Staff to Vice-Admiral Sallandrouze de Lamornaix. Capitaines de Vaisseau—C. A. Mallarmé to be Rear-Admiral and Assistant-Chief of the General Staff of the Navy ; R. C. Cordier to be Chief of the Staff to Vice-Admiral Fournier ; A. P. Reculoux to "Triomphante" as Senior Officer in command of Naval Division in Cochin-China ; H. L. Manceron to "Iphigénie." Capitaines de Frégate—P. A. Houette to Capitaine de Vaisseau ; A. F. Coffinières de Nordeck to "Sfax"; J. B. Degouy to "Sainte Barbe"; B. M. de Saint Pern to be Chief of the Staff to Rear-Admiral Maréchal.—*Le Journal Officiel de la Republique Française.*

The appointment of Vice-Admiral Fournier, who is the junior vice-admiral on the list, to the command of the Mediterranean Fleet, is in pursuance of the views of M. Lockroy, the new Minister of Marine, who intends to appoint the younger flag-officers to the commands at sea and their elders to the territorial ones. Rear-Admiral C. P. Touchard has been selected to relieve Rear-Admiral Gigault de la Bédollière in China, and he will hoist his flag, as at present arranged, on board the new first-class cruiser "D'Entrecasteaux" towards the end of December. Rear-Admiral Maréchal hoisted his flag on the 4th ult. at Toulon on board the "Magenta."

The Minister of Marine contemplates some important changes in the constitution of the Mediterranean and Active Squadrons. The Mediterranean Squadron is to consist of two divisions of modern first-class battle-ships, of which the "Brennus" (completed in 1896) will be the oldest, and a division of cruisers under the command of a rear-admiral, which will include the light vessels, avisos, and torpedo-boats. The battle-ships forming the two divisions will be as follows :—

First Division—"Brennus" (to carry flag of the Commander-in-Chief), "Bouvet," "Masséna."

Second Division—"Charles Martel" (to carry flag of Rear-Admiral), "Carnot," "Jauréguiberry."

All these ships are well protected, well armed, and of high speed ; the two slowest are the "Brennus" and "Masséna" with a nominal speed of 17 knots, the other four with a nominal speed of 18 knots can be depended upon under favourable circumstances to maintain nearly 17 knots for twenty-four hours. Some of the older and less well-protected ships will be sent to form the new Channel Squadron, taking the place of the coast-defence ships now forming part of that squadron as at present constituted. These vessels, viz., the "Amiral-

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Russia	6	0	6

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France	4	4	8
Russia	0	0	0

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Second-class Cruisers :—	Built.	Building.	Total.
Great Britain	49	5	54
France	16	2	18
Russia	3	6	9

Giving Great Britain 54 to 27 of France and Russia of this class.

Third-class Cruisers :—	Built.	Building.	Total.
Great Britain	36	10	46
France	10	3	13
Russia	13	0	13

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Torpedo-boat Destroyers :—	Built.	Building.	Total.
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First-class Gun-boats and Torpedo-Vessels :—

	Built.	Building.	Total.
Great Britain	52 ...	4 ..	56
France	17 ...	2 ...	19
Russia	17 ...	0 ...	17

Giving Great Britain 56 first-class gun-boats and torpedo-vessels as against 36 of France and Russia.

The above list has not taken into account the third-class battle-ships and coast-defence ships of the three countries, or any cruisers built of wood only.

FRANCE.—The following are the principal promotions and appointments which have been made : Vice-Admirals—E. P. A. Barrera to be Maritime Prefect of the 2nd Arrondissement Maritime (Brest) ; F. E. Fournier to command of the Active Squadron of the Mediterranean Fleet ; C. Sallandrouze de Lamornaix to command of the Squadron of the North ; E. Humann to be an Inspector-General of the Navy. Rear-Admirals—G. A. Roustan to command of 2nd Division of the Active Squadron of the Mediterranean ; A. P. Bienaimé to command of the Superior School of the Navy ; J. J. Nabona to be a Member of the Naval Council of Works ; C. Aubry de la Noë to be Chief of the Staff to Vice-Admiral Sallandrouze de Lamornaix. Capitaines de Vaisseau—C. A. Mallarmé to be Rear-Admiral and Assistant-Chief of the General Staff of the Navy ; R. C. Cordier to be Chief of the Staff to Vice-Admiral Fournier ; A. P. Reculoux to "Triomphante" as Senior Officer in command of Naval Division in Cochin-China ; H. L. Manceron to "Iphigénie." Capitaines de Frégate—P. A. Houette to Capitaine de Vaisseau ; A. F. Coffinières de Nordeck to "Sfax" ; J. B. Degouy to "Sainte Barbe" ; B. M. de Saint Pern to be Chief of the Staff to Rear-Admiral Maréchal.—*Le Journal Officiel de la Republique Française.*

The appointment of Vice-Admiral Fournier, who is the junior vice-admiral on the list, to the command of the Mediterranean Fleet, is in pursuance of the views of M. Lockroy, the new Minister of Marine, who intends to appoint the younger flag-officers to the commands at sea and their elders to the territorial ones. Rear-Admiral C. P. Touchard has been selected to relieve Rear-Admiral Gigault de la Bédollière in China, and he will hoist his flag, as at present arranged, on board the new first-class cruiser "D'Entrecasteaux" towards the end of December. Rear-Admiral Maréchal hoisted his flag on the 4th ult. at Toulon on board the "Magenta."

The Minister of Marine contemplates some important changes in the constitution of the Mediterranean and Active Squadrons. The Mediterranean Squadron is to consist of two divisions of modern first-class battle-ships, of which the "Brennus" (completed in 1896) will be the oldest, and a division of cruisers under the command of a rear-admiral, which will include the light vessels, avisos, and torpedo-boats. The battle-ships forming the two divisions will be as follows :—

First Division—"Brennus" (to carry flag of the Commander-in-Chief), "Bouvet," "Masséna."

Second Division—"Charles Martel" (to carry flag of Rear-Admiral), "Carnot," "Jauréguiberry."

All these ships are well protected, well armed, and of high speed ; the two slowest are the "Brennus" and "Masséna" with a nominal speed of 17 knots, the other four with a nominal speed of 18 knots can be depended upon under favourable circumstances to maintain nearly 17 knots for twenty-four hours. Some of the older and less well-protected ships will be sent to form the new Channel Squadron, taking the place of the coast-defence ships now forming part of that squadron as at present constituted. These vessels, viz., the "Amiral-

Tréhouart," "Bouvines," "Jemmapes," and "Valmy," owing to their low free-boards, small coal stowage, and want of speed, are unsuited for serious work in the Channel and Bay of Biscay, and they are therefore to be sent to the Mediterranean, where they will form a powerful Reserve Squadron. The cruiser division of the Mediterranean Fleet will be under the command of Rear-Admiral Maréchal and will be made up of four groups, as follows:—

First Group—

First-class armoured cruisers — "Pothuau" (flag-ship of Rear-Admiral Commanding), "Chanzy," "Latouche-Tréville."

Second Group—

Second-class cruisers—"Cassard," "D'Assas," "Du Chayla."

Third Group—

Third-class cruisers—"Lavoisier," "Linois," "Galilée."

Fourth Group—

Torpedo-avisos—"Casabianca" and three others, with six torpedo-boats. Those of the cruisers at present forming part of the Reserve Squadron or in the Reserve will commission with full complements on the 1st October.

Another change to be effected is the substitution of the first-class battle-ships "Marceau," "Neptune," and "Magenta" for the old torpedo-school ship "Algésiras" and the gunnery-ships "Couronne" and "Calédonien"; the three ships will be under the command of Rear-Admiral Godin, who will hoist his flag in the "Magenta," and they will form a Reserve Division of battle-ships, always available.

The Levant Division will be composed as follows:—Second-class cruiser "Bugeaud" (flag-ship of Rear-Admiral), torpedo-cruisers "Vautour," "Condor," and "Faucon." The first-class armoured cruiser "Amiral-Charner" will return to Toulon as soon as relieved by the "Bugeaud."

The Division forming the tactical school will be composed as follows:—

First-class cruiser—"Amiral-Charner" (flag-ship).

Second-class cruisers—"Friant," "Davout."

These ships will be commissioned next March, and after cruising with the Northern Squadron will return to the Mediterranean at the end of June to take part in the Grand Naval Manœuvres.

The Northern or Channel Squadron will be composed of the following battle-ships and cruisers:—

First Division—

First-class battle-ships—"Formidable" (flag-ship of Vice-Admiral Commanding), "Amiral-Duperré," Amiral-Baudin."

Second Division—

Second-class battle-ships — "Dévastation" (flag-ship of Rear-Admiral), "Courbet," "Redoutable."

First-class armoured cruiser—"Dupuy-de-Lôme."

Second-class cruiser—"Catinat."

Third-class cruiser —"Surcouf."

Torpedo-avisos—"Épervier," "Cassini," with three torpedo-boats, the "Lancer," "Aquilon," and "Mangini."

The new first-class battle-ship "Bouvet" has been commissioned at Toulon for service in the Mediterranean Fleet. The new first-class battle-ship "Gaulois" has been continuing her trials off Brest on the whole successfully, but during her full-speed trial under forced draught, when the ship had attained a speed of over 18 knots, the trial had to be temporarily abandoned, owing to a heated bearing. The second-class cruiser "Sfax," whose repairs are now nearly completed at Brest, has had pole masts substituted for her former military masts with fighting tops; her furnaces are being altered to enable

her to use coal or liquid fuel as may be required; she is to be commissioned this month to relieve the "Rigault de Genouilly" in the West Indies. The third-class cruiser "Milan" has been paid off and placed in the 2nd Category of the Reserve at Toulon, her place in the Mediterranean Squadron being taken by the torpedo-cruiser "Condor." The torpedo-depôt-ship "Foudre," the third-class cruiser "Lalande," and the torpilleurs-de-haute-mer "Orage" and "Chevalier" have also been placed in the 2nd Category of the Reserve at Toulon.

While a part of the Northern Squadron was proceeding to Dunkirk on the 17th August at a speed of 12 knots, the "Valmy," the leading ship, took the ground on the tail of the Colbart bank off Boulogne, and the "Catinat," her next astern, was unable to clear her; the collision which ensued however was fortunately only slight and neither vessel received much damage, the "Valmy" being floated off almost immediately afterwards.

The third-class cruiser "La Pérouse," carrying the pendant of the senior officer of the Indian Ocean Division, having on board General Galliéni, commanding in Madagascar, who was making a tour of the S.E. coast of the island, was totally lost on the coast at Fort Dauphin on 1st August. The crew of 270 men, stores, and 14 guns were saved. It was at first stated that the loss was occasioned by a hurricane, but a later telegram says the vessel struck a sunken wreck. Her commander, Captain Huguet, has been ordered home to report. Her place is to be taken by a sister-ship, the "D'Estaing," at present attached to the Atlantic Division. Like the "La Pérouse," the "D'Estaing" is one of the old cruisers built of wood. She was launched in 1879, and has a displacement of 2,256 tons.

The mobile defence of Corsica has been augmented by four torpedo-boats, namely, 2 first-class and 2 second-class. It now comprises 16 torpedo boats—8 in commission and 8 in reserve. Their names and numbers are as follows:—

First-class boats—"Capitaine-Mehl," "Balny," Nos. 126, 127, 169, 177, 198, 185.

Second-class boats—Nos. 64, 97, 99, 104, 123, 124, 134, 139.

A torpedo explosion of a rather serious nature, presumably with an outrigger torpedo, took place recently on boat No. 144, of the Algerian Mobile Defence, happily without loss of life. It is stated that the torpedo in question was charged with 5 kilogrammes of fulmi-cotton, and that the outrigger in some manner carried away, and the torpedo exploded, blowing a hole a metre square in the fore compartment of the boat; the bulkhead, however, remained intact, and she was kept afloat and towed into harbour. Several of the crew suffered contusions, but none were seriously hurt.

Contracts have been signed for the construction of two sea-going torpedo-boats at Havre, to be named the "Siroco" and "Mistral." They are to be ready for their trials in twenty and twenty-two months respectively.

Last March a decree was promulgated making all second-class cruisers capitaines de frégate commands, in view of the large number of commands which were falling to the share of the capitaines de vaisseau, due to the changes in the material of the Navy. M. Lockroy has just issued a further decree extending the scope of the previous order, and making all first-class cruisers of 6,000 tons displacement and under capitaines de frégate commands. The accompanying is the official table showing the ranks of the officers, who will be appointed to the command of the different classes of ships in the Navy:—

Cuirassés d'escadre et de croisière:—Capitaine de vaisseau.

Cuirassé garde-côtes:—Capitaine de vaisseau ou capitaine de frégate.

Canonnières cuirassées:—Capitaine de frégate.

Croiseurs cuirassés, de 1re *classe* (*au-dessus de 6,000 tonneaux*:—Capitaine de vaisseau.

Croiseurs de 1re *classe* (*de 6,000 tonneaux et au-dessous*) *Croiseurs de* 2e *et de* 3e *classe* } Capitaine de frégate.

These last are commanded by capitaines de vaisseau when flying an admiral's flag or the broad pennant of an officer commanding a division.

The new Minister of Marine arrived at Brest on 3rd August on a visit of inspection, visiting during the day the battle-ship "Jéna" building, the "Masséna," flag-ship of the Northern Squadron, the semaphore station, and the civil hospital. On the morning of the 4th he embarked in the destroyer "Cassini" and visited the defensive works on the south side of the Goulet; in the afternoon the forts on the north side were inspected, and at 6 p.m., from Fort Minon, the Minister witnessed the attempted forcing of the passes by the vessels of the Northern Squadron, attacking in two columns. At 10 p.m. Fort Minon was again visited, and a second attempt by the squadron to force the passes by night was witnessed, the ships being in single column. The Minister returned to Brest at midnight. On 5th August, at 9 a.m., he proceeded to Douarnenez in the "Cassini," when an attempted landing by the fleet was made. Being supposed to be masters of the sea the ships stood in at 4 p.m., and the landing parties were disembarked on the beach at Morgat and Douarnenez. The landing was opposed by 1,200 men of the infantry and artillery of marine, who had been conveyed to Douarnenez earlier in the day by the "Victorieuse." The beach being very flat, the boats grounded some distance off shore, and the landing parties had to wade through shallow water under fire. After forming up on the beach firing ceased, and the men re-embarked and returned to their ships. On the 6th the Minister visited Ushant in the "Cassini," where there is some idea of erecting defences. On the 7th he left for Lorient. He will later visit Cherbourg, Toulon, Corsica, and the Algerian ports, so as to personally satisfy himself as to the sums required for putting them into an efficient state of defence, having special regard to the requirements of Corsica and Bizerta.

Vice-Admiral Fournier, in his order of the day regarding these trials of the defences of Brest, stated that "to absolutely insure the perfect defence of the port, the only thing now needed is a reinforcement of the *personnel* of the artillery and infantry of marine. The number of guns is sufficient, but it has been demonstrated that the combatants must be augmented, and this has already been decided on in principle.—*Le Temps, Le Yacht,* and *Le Moniteur de la Flotte.*

The "Amiral-Tréhouart" (a photograph of which forms our frontispiece) is one of the coast-defence vessels, forming part of the Northern Squadron at present, but which are to be sent to the Mediterranean in the near future, as more suitable for service there than in the Channel. Her dimensions are as follows:—Length, 293 feet 2 inches; beam, 58 feet 4 inches; draught, 23 feet 2 inches, on a displacement of 6,629 tons. Protection is afforded by a complete water-line belt 17·8 inches thick, tapering to 10 inches forward and aft. She carries two 12-inch guns, one forward and one aft in turrets, protected by 14·5-inch armour, eight 3·9-inch Q.F. guns, four 1·8-inch Q.F. guns, and twelve machine guns, with two torpedo-tubes. Her engines develop 8,500-I.H.P., giving a nominal speed of 15·5 knots, but she only carries 337 tons of coal.

GERMANY.—The following are the principal promotions and appointments which have been made: Rear-Admiral – Hoffman to command of Second Squadron and Third Division of Manœuvre Fleet. Kapitäns zur See—Geissler to command of Fourth Division of Manœuvre Fleet; Freiherr von Maltzahn to be an Instructor at the Naval Academy; Diederichsen to be President of Trials Commission; von Frantzius for service at the Ministry of Marine; von Prittwitz

und Gaffron to Chief of the Staff of the Baltic command; Hofmeier to "Weissenburg"; Becker to "Blücher"; Borckenhagen to "Wörth"; Gülich to "Kaiserin Augusta." Corvette-Captains—Gerstung to "Carola"; Josephi to "Pfeil"; von Basse to "Nixe"; Janke, Sommerwerck, Gühler, and Capelle for service at the Ministry of Marine; von Usedom to "Hertha"; Rollmann to "Gefion"; von Colomb to "Cormoran"; Graf von Oriola to "Habicht"; Rampold to "Hela"; Franz to "Pelikan"; Ehrlich to "Stosch"; Dick to be Chief of the Staff of the Second Squadron of the Manœuvre Fleet; Gülich, Goecke, Harms, Plachte, and Graf von Moltke to be Kapitäns zur See.—*Marine Verordnungsblatt.*

It is stated that a new system of classification for the Imperial Navy has been introduced. Since August, 1893, the fleet has been divided into armoured ships and cruisers, each of these divisions being sub-divided again into four classes; for the future however, it is said, the classification will be into:—Battle-ships, coast armour-clads, first-class cruisers, and second-class cruisers. The battle-ships comprise the "Wörth," "Weissenburg," "Brandenburg," "Kurfürst Friedrich Wilhelm," "Baden," "Baiern," "Sachsen," "Württemberg," "Oldenburg," and the two new ships under construction, viz., the "Kaiser Friedrich III." and the "Kaiser Wilhelm II." To the armoured coast-ships belong the eight vessels f the "Siegfried" class, viz., the "Siegfried," "Beowulf," "Frithjof," "Hildebrand," "Heimdall," "Hagen," "Odin," and "Ægir." The first-class cruisers consist of the old armoured ships "König Wilhelm," "Kaiser," and "Deutschland," the "Kaiserin Augusta," and the following vessels under construction, viz., the "Fürst Bismarck," "Luise," "Hertha," "Freya," "Vinita," and "Hansa." In the second-class come the "Irene," "Prinzess Wilhelm," "Gefion," "Arcona," "Alexandrine," "Schwalbe," "Sperber," "Bussard," "Falke," "Cormoran," "Condor," "Seeadler," "Geier," "Gazelle," and the nine avisos "Zieten," "Blitz," "Pfeil," "Greif," "Wacht," "Jagd," "Meteor," "Komet," and "Hela." The armoured fleet therefore consists of 11 battle-ships and 8 coast-defence vessels; and the cruiser squadron of 10 large and 23 smaller vessels. It is difficult to understand on what principle this classification has been carried out; or how, for instance, despatch-vessels like the "Zieten" and her sisters can by any possibility be considered second-class cruisers, or why the armoured gun-boats of the "Mücke" class are omitted altogether.

The battle-ship "Baiern," which has been undergoing a complete overhaul, including the placing of new boilers, at Dantzig, having completed her trials satisfactorily, has been commissioned and taken her place in the Second Division of the Manœuvre Squadron; her sister-ship, the "Baden," after similar repairs, has also joined the squadron as flag-ship of the rear-admiral second in command.

Rapid progress is now being made with the three new battle-ships at present under construction, viz., the "Kaiser Friedrich III.," the "Kaiser Wilhelm II.," and Ersatz "König Wilhelm," and the first is to be ready for her steam trials next month. The most noticeable feature about these ships is the almost complete disappearance of wood from any part in their construction, everything being of steel, iron, and copper, the only wood to be found being in the furniture in the officers' messes and cabins. Instead of linoleum, the decks are being covered with a new sort of cement, called "Torgament," made from sawdust, plaster of Paris, and some fluid material for mixing the ingredients, the nature of which is kept a secret; this new cement dries rapidly and becomes very hard, but its cost is very high.

Of the eight new torpedo-boats ordered for the fleet during the last two years, six have been delivered and the other two are now undergoing their trial trips. These new boats are built of specially prepared nickel steel, now being used for the first time by the shipbuilding authorities; they have a displacement of 155 tons and a speed of 25 to 26 knots; their armament consisting of one 5-centimetre Q.F. gun, one 8-millimetre machine gun, one submerged bow tube,

and two broadside tubes on deck. Six of the boats have Thornycroft water-tube boilers and have been built by the Schichau firm; the remaining two built at the Germania Yard, Kiel, have Scholz water-tube boilers, and all are fitted to burn petroleum fuel.

The corvettes "Sophie" and "Nixe," two of the boys' training-ships, left in the middle of August on a seven and a half months' cruise to the coast of South America; the other three seagoing training-ships — the "Stosch," "Moltke," and "Charlotte"—have been taking part in the earlier stages of the manœuvres, but are to leave immediately on their usual winter cruise. On board these five training-ships are embarked 73 midshipmen, 108 cadets, and 735 boys.

At Dantzig, on the 4th August, took place the launch of the first-class gunboat "Iltis," the first of four being constructed to take the places of the old "Iltis" (lost in a typhoon on the Shantung coast on the 23rd July, 1896), the "Hyäne," "Wolf," and "Habicht." The new vessels are 201 feet 6 inches long, with a beam of 29 feet 6 inches, and a displacement of 895 tons on a mean draught of water of 9 feet 9 inches. They are composite built, and being intended for tropical service will be wood-sheathed; the upper deck, with the poop and forecastle, will be wood-planked, but the lower deck will be of steel covered with linoleum. The vessels are twin-screwed, and the engines will develop 1,300-I.H.P., giving a speed of 13 knots. They will have three masts, with a fore and aft rig.

The work of constructing the new large dock in the Imperial Dockyard at Kiel is now in full swing. The largest dock at present in the yard is only 390 feet long, so none of the new battle-ships or armoured cruisers can be docked at present in this the most important naval station in the Baltic. The new dock will be 570 feet long, and it is being built on the west side of the dockyard, the foundation being carried to a depth of 60 feet, the depth on the sill being 35 feet; as it lies some distance from the fitting-out basin, the dock will have a direct entrance from the harbour. The pumping station will be on the west, and the engines and boiler-house on the east side. Dredging operations on an extensive scale are now being carried on, as part of the dock will extend out into the harbour, which will necessitate the construction of large cofferdams.

According to a report issued by the Ministry of Marine, the Officers' List of the Imperial Navy is constituted as follows:—The Secretary of State for the Navy, 2 admirals, 3 vice-admirals, 9 rear-admirals, 47 captains, 82 commanders, 220 lieutenant-commanders, 254 lieutenants, 173 sub-lieutenants, 1 colonel and 39 officers of marine infantry, 115 engineers, 132 surgeons, 39 torpedo officers and engineers, 55 ordnance officers, 96 paymasters, and 25 pensioned officers, making a total of 1,299 officers of all ranks, in addition to whom there are 267 midshipmen and naval cadets. The *personnel* of the men consists of 979 warrant officers, 4,382 petty officers, 16,679 seamen, 659 bandsmen and artificers, etc., and 750 boys including their instructors, making a grand total of 23,449 men. The men are divided as follows:—Two seamen's divisions, each with two sub-divisions and one sub-division of boys, 10,722 men; two dockyard divisions of five companies each, 6,305 men; two torpedo sub-divisions, 2,563 men; four seamen-gunner sub-divisions, 2,202 men; two marine battalions of four companies each, 1,201 men; the gunnery staff, 110 men; torpedo and submarine mining staff, 165 men; surveying staff, 14 men; and clothing department, 167 men; making a total as given above of 23,449 men.

Admiral von Knorr, the Commanding Admiral of the Navy, hoisted his flag on the 14th August, at Kiel, on board the torpedo-school ship "Blücher," and took over the command of the manœuvre fleet. The manœuvres will last until the 16th inst., the squadron breaking up on the 17th inst. at Wilhelmshaven. The first portion of the manœuvre period has been spent in the Baltic; steam tactics,

scouting and attacks from the torpedo-boat flotillas being carried out. On the 1st inst. the whole squadron, numbering 13 armoured ships, 5 despatch-vessels, 3 training-ships, and 28 torpedo-boats, passed through the Kaiser-Wilhelm Canal into the North Sea. After coaling, tactical exercises were again carried out, and the manœuvres will conclude with a blockade of, and an attack upon, the defences of the Jade.—*Neue Preussische Kreuz-Zeitung* and *Deutsche Heeres-Zeitung.*

ITALY. — The following appointments and promotions have been made: Vice-Admirals—N. Canevaro to be Minister of Foreign Affairs; G. Palumbo to be Minister of Marine; A. Puliga to be Under-Secretary of State for the Navy. Rear-Admirals—G. B. Mirabello to command of Naval Station at Maddalena; E. Grandville and E. Gualterio to be Vice-Admirals. Captain—R. Resasco to be Rear-Admiral.—*Gazzetta Ufficiale.*

Rear-Admiral Bettolo has hoisted his flag on board the first-class battle-ship "Francesco Morosini," and has left Spezia to take command of the squadron in Cretan waters; he is ordered to report, whether it will be advisable or possible to reduce the strength of the squadron, with a view to saving of expense

The corvettes "Amerigo Vespucci" and "Flavio Gioia," were commissioned at Leghorn on 16th July for the annual instructional cruise of the students at the Naval Academy; they are to visit various ports in the Mediterranean, and the cruises are to be made as far as possible entirely under sail; the ships are under the command of Rear-Admiral Marchese. The first-class battle-ship "Andrea Doria" was commissioned at Spezia on the 1st ult., to join the Active Squadron. The first-class despatch-vessel "Archimede" was commissioned at Venice on 2nd ult., for the practical instruction of the engineer students. The new third-class cruiser "Puglia," which is now nearly ready for launching at Tarente, is a similar type to the "Elba," built of steel and with a protective deck; her dimensions being as follows:—Length, 273 feet; beam, 40 feet; mean draught, 16 feet 6 inches, with a displacement of 2,550 tons; the engines are to develop 7,000-I.H.P., to give a speed of 20 knots; the armament will consist of 24 guns, viz., four 6-inch, six 4·7-inch, with fourteen smaller Q.F. guns, and two torpedo-tubes; while she will have a complement of 260 officers and men. The first-class battle-ship "Duilio," which has lately completed her repairs and undergone extensive alterations at Spezia, has been undergoing her trials; during an eight hours' run under natural draught a mean speed of 15 knots was maintained, which is as high as her speed under forced draught when she was first built; her new coal stowage will suffice to give her a radius of action of 2,000 miles at 15 knots, and of 3,200 miles at 12 knots.

It has been decided to construct a new dry dock in the arsenal at Venice, alongside the existing one, and it is to have a length of 780 feet over all.

The first-class battle-ship "Benedetto Brin," which is being constructed at Castellamare will be of the following dimensions:—Length, 409 feet between perpendiculars; beam, 77 feet 6 inches; displacement, 12,765 tons, with a mean draught of 26 feet 4 inches. Protection will be afforded by a water-line belt of nickel steel extending from the ram to about 50 feet of the stern; the belt tapers from 6 inches amidships to 2 inches at the extremities; the 6-inch armour amidships being carried up to the battery deck, forming a citadel, the ends of which are shut in by 10-inch athwartships bulkheads; the armoured deck extending the whole length of the ship tapers from 3 inches to 1·8 inches. The engines are to develop 14,000-I.H.P. under natural draught, and 18,000-I.H.P. under forced draught; to give a speed of 18 and 20 knots respectively, steam being supplied by water-tube boilers. The normal coal supply will be 1,000 tons, which will give a radius of action of 5,000 miles at 10 knots, but in case of necessity double that amount of fuel can be carried. The armament will consist of two 30·5-centimetre (12-inch) guns mounted in a turret aft, protected by 6-inch armour of hardened steel;

ten 20-centimetre (8-inch) Q.F. guns in pairs in turrets, one forward on the centre line of the ship, and the other four, one at each angle of the citadel, these turrets are also protected by 6-inch armour of hardened steel; sixteen 7·6-centimetre (3-inch) Q.F., eight 3-pounder Q.F. guns, and four torpedo-tubes. The principal characteristics of the new ship are the increase in the number of medium-sized and light Q.F. guns, the protection by turrets of all but the smallest guns, and the making of the stern armament of the ship heavier than that forward. It was originally intended that these ships should carry 6-inch Q.F. guns, but in view of the heavier armament being given to many new foreign ships, it was thought advisable to substitute the 8-inch guns, in view of their greater penetrating power, although the rate of fire from them is much slower than from the 6-inch; for a similar reason the 3-inch Q.F. guns have been substituted for the 2·2-inch (6-pounder) Q.F. guns, which have been generally carried up to the present. There are two sister-ships, the "Ammiraglio Racchia" and the "Principessa Elena," building at Spezia and Venice respectively.

The third-class torpedo-boats have now been distributed among the different ports as under:—Nos. 22, 25, 29, 31, 32, 36, 38 and 57 to Spezia; Nos. 24, 44, 45, 46, 52 and 53 to Maddalena; Nos. 26, 27, 28, 33, 39—43, 47—51, 54—56, and 58 to Tarentum; Nos. 23, 30, 34, 35, 37 and 59 to Venice.

It is stated that Vice-Admiral Palumbo, the new Minister of Marine, has decided to strike off the active list of the fleet all ships which cannot during the manœuvres come up to a certain speed. What this speed is has not yet been announced. He has further directed that the use of wood in the construction of new ships is to be discontinued, and that in ships already under construction its use is to be minimised as much as possible.

Signor della Rocca, the reporter of the Committee on the Naval Estimates, has recommended the addition of a further sum of 1,000,000 lire, bringing the total up to 106,000,000 lire (£4,240,000), for the following reasons:—

1. The number of ships and torpedo-boats to be commissioned during the ensuing year will be larger than during the last year.

2. The *personnel* of the Headquarter Staff is to be increased, as well as there being an increase in the number of officers and men for the fleet.

3. The Grand Manœuvres this year will be for a longer period than last year.

The Committee having considered the problem of coast defence and the absolute necessity of complete harmony and effective co-operation between the army and the fleet in that important work, suggest that the Government should establish a Supreme Council, who should be charged with the duty of formulating a scheme of defence in consultation with the Ministers of War and Marine.

The Committee further recommend that the sums received by the sale of the two armoured cruisers "Garibaldi" and "Varese" should be devoted to increasing the number of sea-going torpedo-boats, torpedo-boat destroyers, and the hastening of the completion of the battle-ships "Ammiraglio Saint-Bon" and "Emanuele Filiberto."

According to the Naval Estimates for the new financial year (30th June, 1898, to 30th June, 1899) the following ships are to be in commission:—

Active Squadron—

First-class battle-ships—"Lepanto" (flag-ship of Vice-Admiral Morin, Commander-in-Chief), "Sardegna" (flag-ship of Rear-Admiral second-in command), "Sicilia," "Re Umberto," "Andrea Doria."

First-class armoured cruiser—"Garibaldi."

Torpedo ram-cruisers—"Piemonte," "Giovanni Bausan," "Etruria, "Lombardia."

Torpedo-cruisers—"Aretusa," "Euridice," and 12 torpedo-boats.

The squadron is to be eight months in full commission and four months in reserve.

Reserve Squadron—
First-class battle-ships—"Francesco Morosini," "Dandolo" (flag-ship of Vice-Admiral Magnaghi, Commander-in-Chief), "Ruggiero di Lauria" (flag-ship of Rear-Admiral second-in-command).
First-class armoured cruiser—"Varese."
Torpedo ram-cruisers—"Fieramosca," "Stromboli," "Elba," "Liguria."
Torpedo-cruisers—"Urania," "Goïto," and 12 torpedo-boats.
The squadron is to be three months in full commission and nine in reserve.

Indian Ocean and Red Sea Division—
Corvette—"Cristoforo Colombo."
First-class gun-boats—"Governolo," "Veniero," "Provana."

The Trans-Oceanic Division—
First-class armoured cruisers—"Carlo Alberto" (flag-ship of Rear-Admiral Candiani, commanding squadron), "Marco Polo."
Torpedo ram-cruisers—"Etna," "Dogali," "Calabria," "Umbria."

Training-ships for Naval Cadets—
Corvettes—"Amerigo Vespucci," "Flavio Gioia." Will be in commission for four months.

Gunnery school-ships—
Armoured frigates—"San Martini," "Terribile."
Torpedo school-ships—"Trinacria," "Saetta."

Training-ships for boys—
Corvette—"Caraceiolo."
Brigs—"Chioggia," "Miseno," "Palinuro." These vessels will be in commission for six months.

Some of the ships above-mentioned are at present employed on other duties, among which is a special squadron for service in Cretan waters and the Levant, constituted as follows:—

First-class battle-ship—"Francesco Morosini" (flag-ship of Rear-Admiral Bettolo).
Torpedo ram-cruiser—"Etruria."
Torpedo-cruisers—"Caprera," "Montebello."
First-class gun-boat—"Volturno."

While the "Marco Polo" has been detached from the Trans-Oceanic Division to China, for the protection of Italian interests in those waters.—*Italia Marinara* and *Mittheilungen aus dem Gebiete des Seewesens.*

NORWAY.—The Government has asked the Storthing to vote a credit of 16 million crowns for extraordinary defence works. Of this sum it is proposed to devote 9½ million crowns to the construction of two battle-ships. The following sums have also been demanded for strengthening the fortifications of the undermentioned places:—Soelvik, 70,000 crowns; Dröbak, 922,000 crowns; Bergen, 400,000 crowns; and Agdenäs, 400,000 crowns, with a further sum of 55,000 crowns towards the harbour of refuge; for the fortification of the Tönsbjergfolrde, 570,000 crowns; while 400,000 crowns are required for the Rödfo powder factory, and 159 000 crowns towards the enlarging of the private docks at Bergen; 200,000 crowns are also required for improving the mobilising organisation of the torpedo-boat flotilla.

The manœuvre squadron has this year been carrying out a series of tactical operations on the coast-line of the Skagerack. Although the strategic value of the Skagerack passage has been, as far as the German fleet is concerned, diminished by the opening of the Kaiser-Wilhelm Canal, yet it is considered that, in the event of an Anglo-Russian war, the open channel between Skagen and Cape Lindesnäs would play an important part. From this point of view the capabilities of the different bays on the Norwegian side in the neighbourhood of the Tönsberger Fiord have been carefully examined, as it is considered that in the event of a

blockade of Christiana, the Tönsberger district would prove of the greatest value for relief operations. The manœuvres have shown that it would be extremely difficult for a hostile blockading squadron to effectively occupy all the adjacent coast-lines. It would be extremely difficult from the sea to make a successful descent on the coast, if the numerous islands were occupied, and the channels protected by torpedoes, while the torpedo-flotilla would find numerous secure anchorages from which to act with effect against an enemy's fleet.—*Deutsche Heeres-Zeitung* and *Neue Preussische Kreuz-Zeitung.*

SWEDEN.—The dimensions of the two torpedo-cruisers "Psilander" and "Jacob Bagge," which are being built by Messrs. Yarrow, are as follows:—Length, 220 feet; beam, 27 feet; displacement, 670 tons, with a draught of 8 feet 6 inches. The engines are to develop 4,000-I.H.P., giving a speed of 20 knots, and the boilers are to be water-tube. The armament will consist of two 4 7-inch Q.F. and four 6-pounder Q.F. guns, with one torpedo-tube.—*Le Yacht.*

The Commission appointed by the Government in May, 1897, to inquire into the question of the defences of Sweden has submitted its report. The following recommendations are made:—

1. The complete the defences of Stockholm from the coast at Waxholm and Oscar-Frederiksborg at an estimated cost of 2.867,300 kroner.

2. To complete the fortifications of Carlskrona, 4,900,000 kroner; of Carlsborg, 1,900,000 kroner; and of the island of Gothland, 997,200 kroner.

3. To erect a fortress at Boden in Upper Norrland, 8,700,000 kroner.

4. To fortify the town of Gothenburg from the coast with the object of preventing the approach of hostile vessels.

5. To build a fortress on Vesterberget, near Gothenburg.

The total expenditure on fortifying the town is estimated at 1,660,000 kroner. The total outlay for the whole of the projected fortifications is expected to amount to about 21,000,000 kroner, or approximately £1,160,000. The time required for completing this work will extend over ten years, and will be divided into one period of four years and two of three years each, but in such a way that for the first-named period a considerably larger sum will be expended than for the two last.

The first period will be devoted to the execution of the works principally intended to assure the maintenance of the country's neutrality. These will be the defences at Waxholm and Oscar-Frederiksborg, and the sea forts at Carlskrona, Farosind, and Gothenburg. The fort at Boden is to be placed in a proper state of defence at the end of the first period. The other works are to be spread over the last two periods, although those at Carlsborg will be carried on during the whole period at an annual cost of 200,000 kroner.

MILITARY NOTES.

PRINCIPAL APPOINTMENTS AND PROMOTIONS DURING AUGUST, 1898.

Field-Marshal H.R.H. the Duke of Cambridge, K.G., Hon. Colonel-in-Chief to the Forces, to be Colonel-in-Chief of the Middlesex Regiment. Major-General H. M'Calmont, C.B., M.P., to command the Cork District. Colonel R. Upcher, C.B., D.S.O., to be Major-General. Colonel (temp. Major-General) Hon. R. A. J. Talbot, C.B., commanding Cavalry Brigade, Aldershot, to be Major-General. Mr. F. T. Marzials to be Accountant-General of the Army.

HOME.—The Anglo-Egyptian Army, under the Sirdar, Major-General Sir H. Kitchener, fought a decisive battle with the Mahdist Forces under the Khalifa on the 3rd inst. outside Omdurman. Reports have appeared in all the papers. The

Khalifa's Army is estimated to have numbered between 35,000 and 50,000, including all able-bodied males in Omdurman. Of this number, 15,000 are reported as being killed, and over 16,000 wounded and taken prisoners. The Anglo-Egyptian force numbered, roughly, 25,000 men, and the total casualties just over 500. The loss in the 21st Lancers, which greatly distinguished itself, amounted to one officer, Lieutenant R. S. Grenfell, 12th Lancers (attached), and 22 men killed; and 45 men and the following officers wounded: — Lieutenant and Adjutant A. M. Pirie, Lieutenant J. C. Brinton, 2nd Life Guards (attached), Lieutenant Hon. R. Molyneux, Royal Horse Guards (attached), and Second Lieutenant C. S. Nesham. Total casualties in the regiment, 72. Five English officers attached to the Egyptian Army were wounded: — Captain C. H. de Rougemont, R.A.; Lieutenant H. C. B. Hopkinson, Seaforth Highlanders; Captain N. M. Smyth, 2nd Dragoon Guards; Lieutenant H. A. Micklem, R.E.; Lieutenant C. F. S. Vandeleur, D.S.O., Scots Guards. Colonel F. W. Rhodes, D.S.O. (since restored to the Army), late Royal Dragoons, serving as special correspondent to the *Times*, was also wounded; and the Hon. H. Howard, assistant correspondent, was unfortunately killed in Omdurman.

Of the Anglo-Egyptian force which the Sirdar, Major-General Sir H. Kitchener, had at his disposal, the British Division under the command of Major-General W. F. Gatacre, C.B., D.S.O., consisted of two brigades:—

1st British Brigade (Brigadier-General A. G. Wauchope, C.B., C.M.G.), 1st Bns. of the Royal Warwickshire, Lincolnshire, Seaforth Highlanders, and Cameron Highlanders.

2nd British Brigade (Brigadier-General Hon. N. G. Lyttelton, C.B.), 1st Bn. Grenadier Guards, 1st Bn. Northumberland Fusiliers, 2nd Bn. Lancashire Fusiliers, and 2nd Bn. Rifle Brigade.

The Egyptian and Soudanese troops, under the command of Major-General A. Hunter, D.S.O., were as follows:—

1st Egyptian Brigade (Lieut.-Colonel H. A. Macdonald, C.B., D.S.O.), 2nd Egyptian, 9th, 10th, and 11th Soudanese.

2nd Egyptian Brigade (Lieut.-Colonel J. G. Maxwell, D.S.O.), 8th Egyptian, 12th, 13th, and 14th Soudanese.

3rd Egyptian Brigade (Lieut.-Colonel D. F. Lewis), 3rd, 4th, 7th, and 15th Egyptians.

4th Egyptian Brigade (Lieut.-Colonel J. Collinson), 1st, 5th, 17th, and 18th Egyptians.

To the infantry were attached sixteen Maxim guns. Six were manned by a detachment of No. 16 Company (Eastern Division) R.A., four by a detachment of 1st Bn. Royal Irish Fusiliers, and six by Egyptians. A detachment of No. 2 Company Royal Engineers was also attached to the British Division.

In addition to the above the Sirdar had at his command: –

British Cavalry – 21st Lancers.
Egyptian Cavalry—Ten squadrons.
Egyptian Camel Corps – Eight companies.
British Artillery – 32nd and 37th Field Batteries, and detachment 16th Company (Eastern Division) R.A., with two 40-pounders.
Egyptian Artillery—One Horse Artillery and four Field batteries.

The 37th Field Battery is armed with the 5-inch howitzers firing 50-lb. shell filled with the new explosive "lyddite." The guns are drawn by mule teams led by Egyptians, and the equipment is so arranged that each mule carries four shells into action. The Egyptian Horse Artillery battery has Krupp guns of 75-millimetre calibre. The field batteries are armed with the Maxim-Nordenfeldt of the same calibre. These latter were frequently referred to as quick-firing, but they are more correctly described as quick-loading, for they are not furnished with the spade for stopping recoil.

Besides the troops above detailed, a force of friendlies was supplied with arms and ammunition, and well organised under Major E. J. Montagu-Stuart-Wortley, C.M.G., King's Royal Rifles. The men were armed in the main with rifles of various types, but some had swords and spears, and both horsemen and camelmen were amongst them.

No small share of the success of the forward movement was due—both from the purely military and the purely transport points of view—to the gun-boats, of which there are fourteen, under the command of Commander Colin Keppel, D.S.O. The three largest are the "Sheik," the "Sultan," and the "Melik," steel screw boats of 140 tons, built by Yarrow last year, and carrying two 12-pounder quick-firers behind half-inch armour, and eight machine guns.

There are three stern-wheelers built by Forrest in 1896—the "Zafir," the "Nasir," and the "Fateh," each of which carries one 12-pounder and two 6-pounder quick-firers, a 24-pounder howitzer, and eleven Maxims. The "Zafir," however, unfortunately sank off Shendy on the 28th ultimo. The four ships, "El Teb," "Tamai," "Metemmeh," and "Abu Klea," built for the Relief Expedition, are also with the flotilla, and there are in addition four slightly-armed despatch-boats.

Acting under instructions from Mr. Wallace, C.M.G., Agent-General of the Royal Niger Company, the town of Siama, in the Forcados branch of the Niger delta, was attacked and destroyed on the 28th August, by a force under the command of Major A. J. Arnold, D.S.O. In spite of repeated warnings from the company, the inhabitants of that town have persisted in reviving their former habits of piracy, and have for some time past ceased to pursue peaceful avocations, living upon the result of depredations upon the native river traffic, which in consequence came to a standstill.

The force employed consisted of Captain (local Major) A. J. Arnold, D.S.O., 3rd Dragoon Guards, Lieutenants V. J. Tighe, West India Regiment, R. M. Stallard, Bedfordshire Regiment, and F. J. Engelbach, the Buffs, all of the Royal Niger Constabulary; Captain P. S. Wilkinson, Northumberland Fusiliers, of the West African Frontier Force; Dr. Craster, and the District Agent, with sixty-five rank and file of the Royal Niger Constabulary. The company's gun-boat "Liberty," under the command of Captain Franmer, conveyed the expedition from Lokoja.

The town was bombarded by 2½-inch Maxim-Nordenfeldt Q.F. guns, and raked by the fire from Maxim guns for twenty-five minutes, when parties under Lieutenants Tighe and Engelbach and Captain Wilkinson were landed, and after three hours' hard fighting, assisted by the fire from the "Liberty," drove out the pirates and burned the town to the ground.

The enemy defended their houses stoutly and contested the town yard by yard. The British casualties were one killed and five wounded. Lieutenant V. J. Tighe, of the West India Regiment, was severely wounded in the hand, but is doing well. He has been invalided to the Canaries. The expedition had to return on August 29th and 30th before the Siamas finally submitted and agreed to sue for peace. A heavy fine will be imposed and hostages detained until it is paid. The effect of the expedition will be to clear the waterways of the Forcados branch once and for all of piratical attacks on native river traffic.

The following despatch was received at the Foreign Office on the 9th inst. from Her Majesty's Commissioner in Uganda, dated Kampala, August 15th:—

"I have received a detailed report from Major Martyr which indicates complete success of the action against the mutineers on August 4th. The whole party were dispersed and pursued, over 40 being killed and 34 taken prisoners. An act of conspicuous gallantry was performed by Major Price, of the 1st Baluchis, in capturing the enemy's outposts with a few Somalis. He approached the post on the 3rd, at night, and clearing a breastwork, went in single-handed, shooting down the men of the picket. The post was composed of ten men, nearly all of

whom were killed or taken prisoners, and all their arms and ammunition were seized. Great courage was shown by a Somali corporal and an interpreter supporting Major Price."

The first-named officer is Major (local Lieutenant-Colonel) C. G. Martyr, D.S.O., Duke of Cornwall's Light Infantry. The other is Captain (local Major) C. H. U. Price, second in command, 27th Bombay Light Infantry or 1st Baluchi Battalion.

With reference to the account of the Battle of Preston, 1648, which appeared in the JOURNAL for July, p. 830, translated by Major J. M. Gawne, King's Own (Royal Lancaster Regiment), from Hoenig's "Oliver Cromwell," Major T. S. Baldock, R.A., has addressed the following letter to the Editor:—

HOENIG'S "OLIVER CROMWELL."

A CRITICISM.

Aldershot, 30th July, 1898.

SIR,—In the last number of this JOURNAL Major Gawne gives a translation of the account of the Preston Campaign (1648) in Hoenig's "Oliver Cromwell," and draws the attention of military students to this work.

Whilst I quite agree with him as to the great interest of Cromwell's campaigns, I wish to warn your readers against the many inaccuracies of Hoenig's work. If compared with the accounts of contemporary writers such as Clarendon, Rushworth, Whitlocke, and the pamphlets and newspapers contained in the collection called the "King's Pamphlets," in the British Museum, or with first-rate modern works, such as Mr. Gardiner's "Great Civil War," it will be found that Hoenig's narrative is quite unreliable as to facts.

Take for instance Major Gawne's translation in this JOURNAL. On page 831 he states:—

"Marching on the 15th July from Pembroke, Cromwell's cavalry joined hands with that of Lambert near Barnard Castle on the 27th July, Cromwell himself with the infantry reaching Wetherby the following day, the 287 miles having been covered in thirteen days, *i.e.*, at a rate of some *twenty-two* miles a day."

As a matter of fact, Cromwell with the infantry only reached Doncaster on August 8th (Gardiner, Vol. IV., p. 179), *i.e.*, twenty-four days after leaving Pembroke, and Wetherby on the 11th. The whole story of Cromwell's pushing Lambert on towards Appleby, whilst he himself waited between Leeds and York until Hamilton should have advanced sufficiently to enable him to deliver his blow from the flank, is a myth. Lambert had been on the border when the Scottish invasion began, had retired from Appleby after garrisoning the Castle on July 17th, and had been falling back, keeping touch with the Scots until he joined Cromwell at Wetherby on the 12th.

Cromwell reached Yorkshire almost too late, for after halting three days at Doncaster to collect the necessary supplies and obtain money, he immediately began that wonderful march against Hamilton's flank, never halting a day until the last of the Scots' foot had surrendered at Warrington on the 20th.

I am, Sir, yours faithfully,

T. S. BALDOCK, Major, R.A.

To the Editor ROYAL UNITED SERVICE INSTITUTION JOURNAL.

The Commander-in-Chief has issued the following memorandum:—

"It will be the duty of company officers to point out to the men under their control, and particularly to young soldiers, the disastrous effects of giving way to habits of intemperance and immorality; the excessive use of intoxicating liquors unfits the soldier for active work, blunts his intelligence, and is a fruitful source of military crime.

"The man who leads a vicious life enfeebles his constitution, and exposes himself to the risk of contracting disease of a kind which has of late made terrible ravages in the British Army.

"Many men spend a great deal of their short term of service in the military hospitals, the wards of which are crowded with patients, a large number of whom are permanently disfigured and incapacitated from earning a livelihood in or out of the Army.

"Men tainted with this disease are useless to the State while in the Army and a burden to their friends after they have left it.

"Even those who do not altogether break down are unfit for service in the field, and would certainly be a source of weakness to their regiments and discredit to their comrades if employed in war.

"It should not be beyond the power of company officers to exercise a salutary influence in these matters, more particularly over the younger men. Many of these join the Army as mere lads, and are taken away early in life from the restraints and influences of home. They should be encouraged to look to their superiors, both officers and non-commissioned officers, but more especially to the officers commanding their troops, batteries, or companies, for example and guidance amid the temptations which surround them.

"The Commander-in-Chief expects officers and non-commissioned officers to be always ready and willing to afford them sympathy and counsel, and to spare no effort in watching over their physical and moral welfare.

"Officers should do their utmost to promote a cleanly and moral tone amongst the men, and to ensure that all rowdyism and obscenity in word or action is kept in check. In no circumstances should public acts or expressions of indecency be tolerated, and if in any case there is reason to suspect that immorality is carried on in barracks or other buildings which are under the control of the military authorities, vigorous steps should be taken by surprise visits or otherwise to put a stop to such practices. All persons implicated in them, whatever may be their rank or position in the Service, should be punished with the utmost severity.

"Nothing has probably done more to deter young men who have been respectably brought up from entering the Army than the belief, entertained by them and by their families, that barrack-room life is such that no decent lad can submit to it without loss of character or self-respect

"The Commander-in-Chief desires that, in making recommendations for selection for promotion, regard should be had to example set to the soldier. No man, however efficient in other respects, should be considered fit to exercise authority over his comrades if he is of notoriously vicious and intemperate habits.

"The Commander-in-Chief is confident that officers, non-commissioned officers, and men in the Queen's Service will spare no pains to remove from the Army the reproach which is due to a want of self-restraint on the part of a comparatively small number of soldiers, and that officers of all ranks will do their utmost to impress on their men that in the important considerations of morality and temperance, soldiers of Her Majesty's Army should, as befits their honourable calling, compare favourably with other classes of the civil population."

A return has been issued showing the number of discharged soldiers chargeable on the poor rates of the United Kingdom last December, as inmates of workhouses and in receipt of out-door relief. In that month there were in Class I. of the Army Reserve about 81,800 men. There were in receipt of relief: Reservists under forty years of age, 203; and men under forty years of age who alleged that they were Reservists, 117; total, 320. This shows that not more than one Reservist out of 256 was in receipt of relief. By the Army Estimates it appears that in December, 1897, there were probably 80,224 pensioners. There were in receipt of relief: Pensioners, proved, 1,674; pensioners, alleged, 231; total, 1,905. This shows that not more than one pensioner in forty-two was in

receipt of relief. It is estimated that, exclusive of Army Reserve, pensioners, and deserters, there were in December, 1897, 407,734 survivors of men who had served in the Army. There were in receipt of relief: Men who proved that they had been discharged from the Army without pension, 1,329; men who alleged that they had been discharged from the Army without pension, 5,333; total, 6,662. There were therefore of unpensioned men who had been discharged from the Army, or alleged that they had been so discharged, not more than one to sixty-one in receipt of relief. The total number of men in receipt of relief who proved themselves to be either Reservists or discharged soldiers—with or without pensions—was 3,242, and the estimated total number of Reservists and discharged soldiers in the country was 569,758. This would give one in 176 in receipt of relief. Of the whole male population of the United Kingdom over twenty years of age—excluding soldiers and ex-soldiers—estimated at 9,907,000, there was one in forty-five in receipt of relief. Of the industrial male population over twenty years of age—excluding soldiers and ex-soldiers—estimated at 8,120,025, there was one in thirty-seven in receipt of relief.

The Agricultural Committee on National Wheat Stores, of which the Earl of Coventry was chairman, has issued its report, which is of some interest and importance to those concerned in the question of national defence. It is a private committee, but, composed as it was of prominent men interested in agriculture, and the evidence taken being that of men recognised as representatives of the interests of corn merchants, corn dealers, tenant farmers, and millers, the report will be read with respect. A strong opinion is expressed that a reserve of wheat is necessary for this country as a safeguard against famine in the event of war, and that it should be stored in national wheat stores. The report estimates that ten million quarters should be so stored, and it expresses the hope that the Government will take an early opportunity to appoint a Royal Commission, comprising representatives of agriculture, the corn trade, shipping, and the Navy and Army, to conduct an exhaustive inquiry into the whole subject of the national food supply in case of war. A copy of the report and evidence taken before the Committee has been placed in the library of the institution.

The Council of the United Service Institution of India has now formally notified that the subject for the gold medal essay for 1899 is "The tactical principles and details best suited to warfare on the frontiers of India." The subjects are to be treated under such headings as the following: Marches, reconnaissance, attack and defence, security and training of troops; the three arms to be considered. The essays are limited to 16,000 words, and may be submitted in print or be type-written if convenient. Those not received by the Secretary on or before the 1st March, 1899, will not be accepted.

It has been decided to abolish the posts of Superintendents of the Royal Gun Factories, the Royal Laboratory, the Royal Carriage Department, and the Building Works Department of the Royal Arsenal. These posts have been filled for many years by naval and military officers, and the work is now to devolve on civilian managers under the control of the Director-General of Ordnance Factories.

It is notified in General Orders in India that the valise will be withdrawn from all corps in India for which it is at present an authorised article of supply; and from British infantry on arrival in the country, as well as from the artillery units mentioned in paragraph 403 A, Army Regulations, India, Volume III. The accessories such as braces, mess tin straps, etc., are, however, to be retained by corps. A sufficient number of valises will be stored at the ports of embarkation, or as may be ordered, for issue to British troops concerned on leaving India.

AUSTRIA-HUNGARY.—The Imperial manœuvres commenced in Hungary, in presence of the Emperor, on September 2nd. His Majesty attended those which took place at Buzias until their conclusion on the 7th, after which he was expected

to be present at those beginning on the 12th near Leutschau. The latter were to continue for four days. With reference to the 13th Army Corps, it has, for this year, to be content with brigade and divisional operations. The corps artillery regiment of Agram manœuvres with the troops of the 15th Army Corps on the Bosnian-Herzegovinian frontier till the 14th September, when the return march commences.—*Militär-Zeitung.*

The men of the railway and telegraph regiment, who have hitherto carried their rifles, as other foot soldiers do, suspended from the right shoulder, will in future carry them across the back, like the cavalry. This enables them to get to work at once when necessary, instead of losing time by removing and resuming their arms.—*Revue du Cercle Militaire.*

DENMARK.—The military budget for the year 1898-99 is fixed at 10,067,073 crowns, which sum is 55,329 crowns more than that of last year. The increase is due to additional expense of administration, forage, and the purchase of shelter tents for the men. In the present year 20,000 crowns are to be spent in shells, 25,000 for the conversion of old rifles, and 20,000 for the improvement of field artillery material. The amount asked for by the War Minister for arming and strengthening the fortifications of Copenhagen was not voted by the Chamber.—*Revue Militaire de l'Étranger.*

FRANCE.—General Négrier issued the following regulations for the grand manœuvres :—Positions are not to be recognised—the troops are not to be tied to the ground, but to manœuvre, whether acting on the offensive or defensive. When the former, the army corps is formed with its divisions in rear of each other. The crowding of units together and the premature employment of reserves are to be avoided. There is no first, second, or third line of battle, but each section of the fighting front must have its own reserves, besides which there is a main reserve with artillery attached. Every sectional reserve must have one or two squadrons which, on the initiative of their leaders, must be prepared to co-operate at any moment. When the action begins, every division will send an officer to the general officer commanding the army corps, every brigade an officer to the commander of the division, and every regiment an officer to the commander of the brigade. On every manœuvre day, at the first halt, every captain must read out a short notice showing the object of the day's operations, and the duties assigned to the troops respectively. The infantry is to fight in skirmishing swarms of the strength of a section. The interval between neighbouring swarms may be regulated by circumstances. The word "swarm" is used to show that there are to be no dressing or strict formations. The object of a movement having been stated, it must be left to the men to make the best use of the ground. The swarms are to be supported at a distance of 50 metres by sections in files, which do not become swarms until thrown into the firing line. These bodies are again supported at a distance of 300 to 500 metres by company columns, the sections being in files. The employment of skirmishers in reconnaissance duty is prohibited, three scouts in front of each company being sufficient, but in close country there should be two scouts on each flank. In the attack, if it be not made as a surprise, there should be thin lines of skirmishers composed of two sections, the remaining sections following in files, at a distance of fifty paces. Surprise attacks are to be made in dense lines. Sections and companies advancing in column incline inwards to an interval of six paces. In open country the skirmishing line halts 300 metres from the enemy, and does not advance till its reserve comes up. The actual assault will not begin till fifty paces from the enemy. In firing it is prohibited to fire volleys. No fire in the offensive is to be opened before getting to 600 metres from the enemy. In the defensive the fire may commence as soon as the enemy can be hit effectively. Artillery is not to fire at a longer range than 2,400 metres, and indirect fire is very rarely to be allowed.

For the year 1897 there was an increase in the number of recruits. Although 27,511 were found medically unfit, there still remained 310,816, and in the list of those available but not accepted there were 5,366 names more than there were in the previous year. Eventually 231,278 were accepted, of whom 72,116 were one-year volunteers, 164,697 went to the infantry, 29,920 to the cavalry, 31,191 to the artillery, 5,096 to the engineers, 3,260 to the train, and 6,114 to the administration services. The average height of the men was 1·645 metres; 4·93 per cent. could neither read nor write, 1·49 per cent. could read but not write, 13·49 per cent. could both read and write, 73·12 per cent. had a little further elementary knowledge, 1·48 per cent. had certificates from the national schools, and the remainder had superior education. During the year 1897, 15,035 persons had left the army on account of wounds and disease, 196,523 were dismissed on the completion of their term. Of the latter, 71,645 were unattached, and the rest went to the reserve. For the Marine and Colonial Troops there were 5,047 volunteers, 8,213 engaged for three years, 1,738 for four years, and 4,098 for five years, besides 5,557 who went to the foreign and Algerian regiments, making a total of 29,606 young men who voluntarily enlisted in the Army. In the same year 6,817 under-officers, corporals, and soldiers engaged to serve for a further term after the expiration of that which they were then serving. The number of recruits has gone up from 300,798 in 1890 to 338,327 in 1897, and the one-year volunteers have increased from 52,715 to 72,116, but those voluntarily enlisting have decreased from 35,291 to 29,606.

It is proposed to form a body of mounted troops for service on the Sahara, composed of Spahis and native riflemen who have served four years and upwards. Their duty would be to prevent invasion of French territory, to protect the subject races, to attack armed bands, and to guard the wells. Hitherto the infantry stationed in forts have not had mobility enough to dispose of marauding caravans.

A Stirrup Company or Club (*Société de l'Étrier*) has been formed in Paris to prevent the utter extinction of the higher scientific equitation which flourished at Versailles up to the year 1830, under the most famous instructors in the world. The members number about sixty, and they possess a stud of one hundred horses. They dress in the style of old French horsemen, and cultivate the high school exercises which are now seldom seen in any manège.—*Militär-Wochenblatt.*

A new projectile is about to be adopted in the French infantry. It is made of brass, and is much longer and sharper than that now in use. Its advantages are that it is lighter, carries farther, and has greater penetration. It easily pierces a steel plate 13 millimetres in thickness.—*Militär-Zeitung.*

Every year on the occurrence of the manœuvres the mounted services supply horses, for temporary use, to staff and general officers, infantry officers whose horses are not available, and to officers and officials of the reserve and territorial army. Owing to want of care or supervision these animals are often returned in bad condition, and consequently do not last for their normal period of service. In order to put an end to the loss thus occasioned, the regulations of August, 1896, will be strictly enforced, whereby those in temporary charge of the horses will have to pay for the damage suffered.—*Revue du Cercle Militaire.*

GERMANY.—It is stated by several journals that there is a proposal to make new regiments of cavalry out of the present fifth squadrons. There would therefore be 23 new regiments of four squadrons—2 of guards, 2 of cuirassiers, 6 of dragoons, 6 of hussars, 6 of lancers, and 1 of light cavalry. The number of cavalry regiments would be brought up from 93 to 116. Deducting divisional cavalry for the eventual number (46) of infantry divisions, there would be 70 regiments left to form 6 cavalry divisions of 6 regiments, and 2 divisions of 4 regiments, in addition

to a brigade of guard cavalry. On the supposition that the German forces are to be divided into four armies, there will be three divisions of cavalry for each.—*Revue du Cercle Militaire.*

ITALY.—In consequence of the irregular manner in which the horse supply of the army has been conducted, the War Minister decided on the 12th August, 1898, that in future the cavalry school of Pignerol shall receive 80 horses annually, and each cavalry regiment 96. It is calculated that these numbers are sufficient to make up for all casualties arising from the death or casting of cavalry horses, or from their transfer to the artillery, etc., with the exception of officers' horses, regarding which the Minister will use his own discretion. In order to have, in case of mobilisation, the greatest possible number of horses capable of performing cavalry service, all cavalry regiments without exception are to dispense annually with all horses over 16 years old, but instead of simply casting them, the Minister is to be informed how many are fit for service in the artillery, either as harness or riding horses. They must have a height of 1·50 metres. The Minister is also to be informed as to horses under 16 years old, which prove too slow for their work, and might with advantage be transferred to the artillery.—*Revue du Cercle Militaire.*

RUSSIA.—The summer camps begin to show some activity in the middle of May and are in full swing at the beginning of August. The "little manœuvres," which are the first to take place, are performed by one or two battalions, a battery, and half a squadron on each side. They are chiefly intended to give staff officers an opportunity of handling the three arms, but by no means all of them find a place. These manœuvres are also used for the trial and practice of the new infantry regulations and the order for battle. Afterwards come the regimental manœuvres, in which infantry regiments with corresponding cavalry and artillery, are engaged on each side, and in which officers of the general staff are employed as detachment leaders, and alterations in equipment are tested. The Grand Duke Vladimir issues orders with the view of increasing realism, the consequence being the greatest eagerness on the part of the officers. Troops are to maintain as broad a front as possible so as to facilitate the battle formations of large bodies. The cavalry is exercised in gaining early and distinct intelligence and in keeping up communication, and the artillery has to work with the other arms, and select good positions for practice. After each manœuvre the Grand Duke's remarks are immediately made public, and great progress is the result.

Every year also at the camp of Krassnoe Selo the corps and divisional drills of the guard cavalry and artillery field firing take place. The Grand Duke Nicholas personally directs the larger operations of the cavalry, which are all carried out according to a tactical idea. An element of strength has, it is believed, been obtained by instructing both cavalry and infantry in the duties of artillery. The engineers will this year enliven the manœuvres by taking an important part therein. They will make a passage across the Neva, and bring into use a number of new arrangements for the defence of positions.

The object of establishing the reserve artillery brigades in time of peace, is to provide the cadres of reserve infantry divisions with artillery. According to present arrangements each division of the first class is to have an artillery brigade of four batteries, and each division of the second class is to have two batteries. Since 1897, there have been, as cadres, six reserve artillery brigades of six batteries, and a Caucasian brigade of four batteries, in addition to a special cadre battery for the 48th Infantry Division. Batteries remaining over, and not employed for reserve purposes, are to serve as cadres for Ersatz Artillery.—*Russian Invalid.*

In all great European armies the effort is becoming more and more strenuous to increase the field artillery; likewise to assimilate the peace and war organisations, and make the former more readily available for active service. There is an acknowledged necessity for grouping the artillery, especially as in future wars that arm and the infantry will be more closely united than they have ever been. The Russian reserve artillery consists of 41 batteries of eight guns, each battery being the nucleus of four batteries on mobilisation. Russia is in a very fortunate position in regard to military re-organisation. Whenever anything is deemed requisite, there is no occasion to wait for a Parliament that is willing to vote the money; it is simply ordered to be carried out by a ukase of the Tsar.

The staffs of the reserve artillery brigades of six batteries are to be, in the event of war, similar in their composition to those of the active brigades. The following decisions have been come to in connection with the formation of new units:—The establishment of three light field reserve batteries for the Caucasus brigade; the latter, on its establishment last year, had only four batteries, including a mountain battery; now it has, in all, seven batteries. The horse artillery of No. 5 Battery 2nd Reserve Brigade, and of No. 6 Battery in the 4th and 5th Brigades, are to be converted into a depôt horse battery. The group organisation will be adopted in the reserve artillery, which now embraces fifteen groups. Without going farther into the details of the depôts, and the increase of last year in the Caucasus, the result obtained in the present year is an increase of 320 field-guns.—*Deutsche Heeres-Zeitung.*

SPAIN.—In order to enable doctors about to enter the army, to complete their studies with a view to their future duties, a Military Academy of Health will be opened in Madrid. The head of this establishment will be the sub-inspector of the first class, who directs the Institute of Military Hygiene. The instruction will be given by six surgeon-majors or first surgeons with the title of professor, and two second surgeons as assistant professors. Sub-inspectors of the first-class rank as colonels, those of the second class as lieutenant-colonels. The doctors or licentiates who take the best places in the yearly examinations are to have the preference for admission to the academy, and the students admitted are to receive pay at the rate of 1,500 francs a year. From the 1st to the 15th October, 1898, students will be received for the course, which lasts one year, and embraces, among other subjects, the special pathology of hot climates, the organisation of the Spanish and foreign armies in matters of health, regulations and services, sanitary material, and ambulance tactics.—*Revue du Cercle Militaire.*

SWITZERLAND.—This year's autumn manœuvres, in which the 4th Army Corps will operate against a combined division representing a marked enemy, are under the direction of General Cérésole.

With regard to the introduction of a new field gun, experiments have been made on the artillery range at Thun, with French, English, and German Q.F. guns. The commission has unanimously declared the Krupp quick-firer to be in all respects the most serviceable. Further trials of this gun will be carried out at a cost of 500,000 francs. The firm will furnish a complete battery of six guns for this purpose, and the officers, men, and horses will be provided by the Swiss Artillery.—*Die Vedette.*

Experiments have been made by Swiss officers at Wallenstadt with a projectile of 5·8-millimetre calibre. The rifle from which it was fired was chambered for the cartridge; the barrel was 12 centimetres longer, and the rifling was shorter. The target was white and at a distance of 500 metres. At that range the trajectory was decidedly flatter than that of the Italian arm of 6·5 millimetres, which in this respect much surpassed the rifles of 7·5 and 8 millimetres. The cartridge is much elongated; the ball is covered with copper. The initial velocity is 850 metres, and the penetration three times greater than that of the present projectile. It is, however, considered too light, and its direction is affected by

the wind. Whatever may be the advantages of a very small calibre, it does not seem feasible to reduce it beyond 7·5 millimetres.—*Revue du Cercle Militaire.*

TURKEY.—It is reported that the War Minister is about to complete the re-organisation recommended in 1887 by Baron von der Goltz. This will increase the army by ten and a half reserve divisions, and is expected to bring about, indirectly, an increase in the forces of Bulgaria, Servia, and Montenegro.

Six brigade staffs have been ordered to take up their duties with the 61 regiments of Kurdish Militia cavalry. It has also been determined to give effect to a former intention—that of attaching a half or whole squadron of Regular cavalry to these troops for purposes of instruction.—*Militär-Zeitung.*

UNITED STATES.—It is evident that we cannot afford to disregard a second time the plain necessities of the task we have undertaken in entering some of the most fever stricken regions in the world. A friend who has seen much of the work that we have done in the field, tells us that this campaign has taught several sad lessons. The first of these is the inefficiency of our transport service, and our lack of appliances for landing troops and stores. Every transport steamer should be provided with a signal detachment for intercommunication. Lighters and mariners skilled in handling them should have accompanied them. Three weeks after the landing of General Shafter's Army there was but one lighter to transfer freight from the transports to the shore, and the docking facilities were of the most meagre and primitive kind. This one lighter was kept busy by the Commissary Department to supply the Army with rations, and every other staff department had to stand aside and await the courtesy of the commissary officer, who, by the bye, did wonders. The second lesson is that at the base of an army there ought to be an efficient guard to keep order, and an officer of sufficiently high rank to command all the representatives of the different staff departments, in order to have some unity of action. So far as we can learn no one person was put in control at the landing place so as to secure unity and efficiency of action. The Navy interfered with the Army and the Army with the Navy and all was confusion.

The third and saddest lesson of all is want of proper regard for sanitary precautions. Before our Army left for Cuba the history of the locality where it was to land was well known; the mining companies at Daiquiri and Siboney had furnished accurate information as to the places where yellow fever had prevailed last year. Stringent orders were given to the commanding officer of the forces not to permit any of his officers and men to enter any buildings or to have any intercourse with the inhabitants, and if necessary to burn all infected buildings. Advice of the same character was given the Army commanders by the Navy. But it was totally disregarded. The fever-infected buildings were not destroyed until the arrival of General Miles and Chief Surgeon Dr. Greenleaf, who promptly cremated the Spanish blockhouses and all other buildings at Siboney.

Officers and men were permitted to come from the front to Siboney, and the Michigan command entered out of curiosity every shanty on the ground, General Duffield himself setting the example by making his headquarters in one of these old buildings. The result of all this is that the Army in addition to its terrible suffering and hardship has now to undergo the scourge of fever.—*U. S. Army and Navy Journal.*

THE FOLLOWING IS TAKEN FROM THE REPORT ON THE GATLING BATTERY IN ACTION, BY LIEUTENANT J. H. PARKER, U.S. ARMY.

Bivouac near Santiago, Cuba.

July 23rd, 1898.

SIR,—In compliance with orders I have the honour to submit the following report of my command, the Gatling Gun Detachment, 5th Army Corps, covering its operations down to the present date: –

1. Organisation.—Pursuant to instructions from General Shafter, I was given a detail of two sergeants and ten men on the 26th of May, 1898, from the 13th Infantry, then in camp near Tampa, Fla., and directed to report to 1st Lieutenant John T. Thompson, O.D., Ordnance Officer, Tampa, "for duty with Gatling Guns." I was placed in charge of four guns, model 1895, cal. 30, and at once began the instruction of the detachment.

On June 1st, I received verbal instructions to assist Lieutenant Thompson in his work at the Ordnance Depôt, and performed this duty in addition to my duties with the guns until June 6th, 1898, superintending issues to the expedition (5th Corps) then fitting out for Cuba.

On June 6th, I took my men and guns aboard the transport "Cherokee," and on June 11th, per Special Orders, No. 16, of that date, my detail was increased to thirty-seven men, all told, of whom one was left sick in hospital at Tampa. About twelve of these did not join me, however, until after debarkation at Baiquiri, Cuba.

On June 25th, I received verbal instructions from General Shafter to disembark at once, select the necessary number of mules (two per gun), and get to the front as soon as possible, reporting on my arrival there to General Wheeler, then in command of all the troops at the front.

I was unable to obtain any tentage for myself, and have not yet obtained any, being compelled to sleep without tentage, exposed to all the inclemency of the rainy season in Cuba, and this in spite of the fact that General Shafter authorised the proper allowance of tentage for my command in Special Orders, No. 16.

I was joined on June 25th by Captain Henry Marcotte, 17th Infantry, retired, regularly authorised correspondent of the *Army and Navy Journal*, who has been with me ever since, enduring all the vicissitudes of the season with Spartan fortitude, although equally destitute of cover as myself and 60 years of age. I desire to express here, officially and fully, my sincere gratitude for the kindness which permitted him to accompany my command, and the great appreciation of the valuable advice and assistance which he has given continually. His large experience of war, his clear head and good judgment have always been at hand to aid, and his cool example to myself and my men under fire did much to steady us and keep us up to our work when we were first called on to face that ordeal.

All of the detachment who had not previously joined me did do so on June 26th, on which day I reached the extreme front and reported to General Wheeler. The guns were posted in a position to sweep the neighbouring hills toward the enemy, and I went into camp, remaining there until the morning of July 1st.

Summing up the organisation, it should be stated here that the detachment was organised at the first, and has ever since remained an independent command, receiving its orders directly from the corps commander. It has had its own records, returns, rolls, etc., and has been rationed separately all the time, and is composed of men selected by myself from various regiments.

2. The Battery in Action.—On the morning of July 1st, I broke camp at 4.30 a.m., and, pursuant to instructions from General Shafter, proceeded to El Poso, placing my battery, as I shall henceforth call it, in support behind the position taken by a battery of artillery. I took this position about 6 a.m., and soon after the artillery arrived, went on to battery and opened fire at Santiago, the range being 2,600 yards. After some time the enemy replied with a well-directed fire, the second shell bursting directly over my battery in rear of artillery. Neither my men nor mules showed any signs of disturbance, and we remained in our perilous position nearly twenty minutes, the enemy's shells bursting all around us, until ordered to the rear by the chief of staff. The battery went to the rear under fire quietly until out of range, and remained there until the artillery fire ceased, at about 9 a.m. Private Hoft, Co. D, 13th Infantry, a member of the detachment who had been detailed to guard the camp equipage at El Poso, remained at his post during the whole of the artillery fight, and deserves great credit therefor, his battery having been ordered to the rear.

At 9 a.m I returned to El Poso and there received the following instructions from Colonel McClernand, A. A. G., 5th Corps : — "Find the 71st N.Y.V. and go on with them if you can. If this is not practicable find the best position you can and use your guns to the best advantage." Pursuant to these instructions I went forward about a half mile and found the 71st N.Y.V. halting to learn what their instructions were. I could get no clear idea of what they were going to do, but waited about fifteen minutes in their rear to find out. Meantime troops continually passed us toward the front. Then about 10.15, firing began in front. I rode forward alone along the road, which was a narrow defile through the jungle, and found that about a half mile in front was a creek, upon the crossing of which the enemy's fire seemed to be concentrated. In front of this crossing seemed to be a level plain for about 400 to 800 yards, beyond which was a semi-circular ridge crowned with Spanish trenches from which the Spanish fire seemed to come. Men were being hit continually at this place (the ford), but it seemed to me to be a good place to work my battery effectively.

I rode back, finding the 71st still lying beside the road without any apparent intention of moving, I determined to leave them and go into action. Taking a gallop I moved the battery forward nearly to the ford (about 150 yards), where I met Colonel Derby, of General Shafter's staff, who informed me that the troops were not yet sufficiently deployed to take advantage of my fire, and advised me to wait. The bullets were cutting through all around, and, as we learned afterwards, the enemy's sharpshooters were actually in the woods near us, up in tall trees, picking off officers and men. It should be stated here that the sudden increase of the enemy's fire at this time was caused by a wild cheering set up by the 71st N.Y.V. as the battery passed them on its way to the front. The cheering located our position for the enemy and drew his fire. Many a brave soldier who had gone to the front was put for ever beyond the possibility of cheering by this outburst of ignorant enthusiasm.

I acted on Colonel Derby's advice, and he promised to send me word when the moment for proper action came. This action was necessary, as I knew only part of the plan of battle, and might have jeopardised other parts by prematurely exposing our strength at this point. The gun crews lay down under their guns and steadily remained at their posts. The fire finally grew so hot that I moved about one hundred yards back. This was about 12 noon. At about 1 p.m. I received a message sent by Colonel Derby, I think, as follows :—"General Shafter directs that you give one of your guns to Lieutenant Miley, take the others forward beyond the ford where the dynamite gun is and go into action at the best point you can find." I obeyed the order, giving Lieutenant Miley, Sergeant Weigle's gun and crew, and moving the rest forward at a gallop to the point beyond the ford, which I had already selected as a good place. The battery opened with three guns simultaneously at ranges of 600 to 800 yards at 1.15 p.m. The enemy at first concentrated his fire upon us, but soon weakened, and in five minutes was clambering from his trenches and running to the rear. We fired as rapidly as possible upon the groups thus presented, until I saw a white handkerchief waved by some one of my own regiment, the 13th Infantry, and at the same moment Captain Landis, 1st Cavalry, who had voluntarily assisted me throughout said :—"Better stop ; our own men are climbing up the ridge." I ordered the fire to cease at 1.23½ p.m., and a moment later saw our own troops occupy the crest of the hill. The firing had been continued by the battery until our own troops were within 150 yards of the enemy's trench—a fact made possible by the steep slope of the hill upon which the enemy had been.

At the time when my battery went into action I had no support, and the position I took was at least 100 yards in front of any of our troops along this part of the line. About the time I ceased firing Lieutenant-Colonel Baldwin, 10th Cavalry, put two troops in support of my battery.

I have advanced in a letter to the Adjutant-General from Fort Leavenworth, dated January 1st, 1898, the theory that such guns as these can be used offensively.

The conditions of this assault were favourable, the morale of my men superb, and the use made of the guns followed the theory therein set forth with the exactness of a mathematical demonstration. The Infantry and Cavalry had been pounding away for two hours on these positions; in eight and one-half minutes after the Gatlings opened the works were ours. Inspired by the friendly rattle of the machine guns, our own troops rose to the charge; while the enemy, amazed by our sudden and tremendous increase of fire, first diverted his fire to my battery, and then, unable to withstand the hail of bullets, augmented by the moral effect of our battery fire and the charging line, broke madly from his safe trenches and was mercilessly cut by fire from these guns during his flight.

I at once limbered up and took stock of my losses. One man was killed, one badly wounded, one mule hit twice, but not much injured, and several men were missing.

Suddenly the fire was resumed at the front. I moved my three pieces forward again at a gallop, and went into action on the skirmish line on top of the captured position, with two pieces to the right and one to the left of the main road from El Poso to Santiago. I was compelled to make the skirmishers give way to the right and left in order to get room for my guns on the firing line, and to impress stragglers to carry ammunition. Captain Ayres, 10th Cavalry, gave me a detail of one sergeant and two privates, all of whom did fine service. It seemed to me that the enemy was trying to retake the position. About 4 to 4.15 p.m. I saw a body, apparently about 400, of the enemy to the right front of my position, apparently in front of the position occupied by Lieutenant-Colonel Roosevelt with the 1st Volunteer Cavalry, I turned a Gatling gun on them, using 600-yard range, and they disappeared. Soon after the firing sensibly slackened.

In the rapid fire on this last body of the enemy I had overheated one piece, and it went temporarily out of action. I went over to Colonel Roosevelt's position about a quarter of a mile to the right on a salient, and reconnoitred. While there Sergeant Weigle reported to me with his piece, informing me that Lieutenant Miley had not put it into action, and asked for instructions. This was about the hour of 5 p.m., and the fire became warmer at that moment. I directed Sergeant Weigle to run his piece up on the firing line and to report to the officer in charge thereof. He did so, and went into action at once. Colonel Roosevelt, who was, and remained, present, informs me that the gun was very effectively used. I rejoined my other two guns and put both of them on the line at the left of the El Poso road. At sundown the enemy made a sharp attack, and all three of my guns were effectively used. During the fight a battery in the city opened on my two guns, firing 16-centimetre shell. I at once turned my guns on it and kept up so warm a fire that the cannoneers left their battery and did not return. In all they had fired three shells at us, all of which broke just over or beyond the battery. I secured the fuse of one still warm, and after the surrender visited the battery which had fired at us and examined the gun. It was a 16-centimetre (6·2992-inch) bronze, rifle gun in barbette on a pintle. This is probably the first time in land fighting that such a piece was ever silenced by machine-gun fire. The range I used was 2,000 yards (estimated).

The guns were used during the remainder of the fighting in the trenches. I took off the wheels and put the guns on the carriages in emplacements, erecting a sand-bag parapet in front as cover during the night of July 4th. The disabled gun was brought up and repaired, subsequently participating in the fighting. The dynamite gun, under Sergeant Borrowe, 1st Volunteer Cavalry, co-operated with the battery thus formed, and the whole battery, including the two Colt automatic rapid-fire guns under Lieutenant Tiffany, 1st United States Volunteer Cavalry, did good work in all the subsequent fighting. I had a strong fire directed upon a battery of seven pieces of the enemy's artillery at a distance of 1,500 yards in front every time any attempt was made to use this battery. The result was that only three shots were fired from these guns after July 4th. I visited this battery

after the surrender and found every gun in working order, the 16-centimetre gun being actually loaded. As no organisation, except my battery, of which I had general direction, had such orders, so far as I can learn, the conclusion is that this battery of machine guns kept out of action seven pieces of the enemy's artillery by making it too warm for his gunners to stay in their batteries.

My loss, as footed up on the night of July 1st, was 33⅓ per cent. killed, wounded, and missing. The efficiency of the work of my guns was attested to me by numerous Spanish officers and prisoners. The favourite expression was: "It was terrible when your guns opened, always. They went b-r-r-r-r, like a lawn mower cutting the grass over our trenches. We could not stick a finger up when you fired without getting it cut off—so!"

The results of this experimental battery prove that in this arm we have a new weapon supplementary to infantry and cavalry, independent of both as one arm is of another, and more nearly capable of independent action than any other arm of the service. Experience shows me that the carriage is too heavy. I can only renew the representations contained in the letter accompanying my drawings of a proposed carriage on January 1st, 1898, with the statement that I would now favour a somewhat different organisation, and have several changes to make in the model of carriage I then proposed, without altering the general principle. If any expression of such views is desired, I will be very glad to submit them when called for.

Very respectfully,

JOHN H. PARKER,
2nd Lieutenant, 13th Infantry,
Commanding Gatling Gun Detachment, 5th Corps.

NAVAL AND MILITARY CALENDAR.

AUGUST, 1898.

1st	(M.)	Loss of French cruiser "La Pérouse" off Fort Dauphin, Madagascar.
2nd	(Tu.)	Insurgents under Garcia captured Moyari, Cuba.
3rd	(W.)	H.M.S. "Rainbow" commissioned at Devonport.
4th	(Th.)	1st British Brigade Anglo-Egyptian force arrived at Atbara Camp.
,,	,,	Successful action against mutineers in Uganda, by force under Lieut.-Colonel C. G. Martyr.
,,	,,	Launch of first-class gun-boat "Iltis" at Dantzig, for the German Navy.
,,	,,	American forces take possession of Puerto Rico, Spanish West Indies.
5th	(F.)	2nd Bn. Royal Welsh Fusiliers arrived at Alexandria from Crete.
9th	(Tu.)	H.M.S. "Pique" paid off at Devonport.
10th	(W.)	H.M.S. "Blonde" paid off at Devonport.
12th	(F.)	Peace protocol between Spain and United States signed at Washington.
13th	(Sat.)	Manila surrendered to United States forces under Admiral Dewey.
17th	(W.)	H.M.S. "Cossack" arrived at Plymouth from East Indies.
21st	(S.)	Insurgent general Garcia resigned his command.
22nd	(M.)	Anglo-Egyptian Army advanced to Wad Hamed.
25th	(Th.)	Egyptian gun-boats seized the island of Jebel Royan.
26th	(F.)	Anglo-Egyptian Army concentrated at Jebel Royan, 34 miles from Omdurman.
,,	,,	Telegraph wire reached Jebel Royan.
,,	,,	Fighting between United States troops and insurgents, at Cavite.
,,	,,	31st Co. Southern Division, R.A., and 3rd Bn. Lancashire Fusiliers left Southampton for Malta in the "Jelunga."
,,	,,	H.M.S. "Crescent" paid off at Portsmouth.

28th (S.) Anglo-Egyptian Army arrived at Wad-el-Obeid, 28 miles from Kerreri.
" " Egyptian gun-boat "Zafir" sank off Shendy.
" " Town of Siama, Niger, destroyed by the Royal Niger Company's force.
30th (T.) Anglo-Egyptian Army marched to Sheikh Nib.
" " Volskraad repealed the Volunteer law; deciding to disband all corps by the end of the year.
31st (W.) Anglo-Egyptian Army marched to Sururab.

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NAVAL.

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Manœuvres before Brest." "On the Necessity of Increasing the Peace Effectives of the Brest Garrison."

GERMANY.—*Marine Rundschau.* Berlin: August and September, 1898.—Title-Page: "Portrait of Prince Bismarck"; Photographs of the "Bismarck," "Prince Bismarck," and "Brandenburg." "On the Means for Condensing Sea-water" (*continued*). "The Principles of the Naval Policy of the Teutonic Knights." "The Development of Navies during the last ten years." "The Organisation of the Brazilian Navy." "Nordelbisch-Danish" (*continued*). "Admiral Cervera's Squadron." "On the new Fœrster-Method of Determining a Ship's Position by Double Altitude of a Star." "Strong Lights upon the Mediterranean" (*continued*).

ITALY.—*Rivista Marittima.* Rome: August and September, 1898.—"The Ethics of Victory." "On the Origin of Tempests." "On the Problems of Nautical Astronomy and Stereoscopic Projection." "Employment of Speed and Distance Curves in Changes of Distance and Intervals in General Evolutions." "The Battle of Lepanto, narrated by a Genoese Merchant." "The Spanish-American Conflict" (*supplement*). "The Aiming School" (letter by A. V. Vecchj). "Naval Notes." "Notices of Books," etc. Plates of Japanese cruiser "Takasago," United States battle-ship "Iowa."

PORTUGAL.—*Revista Portugueza, Colonial e Maritima.* Lisbon: August, 1898.—"Christofao da Gama and Miguel de Castanhoso." "Colonial Agriculture" (*continued*). "The Railway from Benguella to the Caconda Plateau." "Colonial Interests" (*continued*). "The Bays of South Angola." "O Bihé." "Naval Notes."

SPAIN.—*Revista General de Marina.* Madrid: August, 1898.—"The Japanese Navy." "The Rights and Duties of Belligerents and Neutrals." "International Congress of Naval Engineers and Constructors" (*continued*). "A Brief Glance at the Eastern Carolines." "A Geographical-Medical-Social Study of the Island of Balabac." "Some Thoughts on Modern Ships." "Injuries to Machinery at Sea and the Method of Repairing them" (*continued*). "Admiral Cervera's Squadron."

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AUSTRIA-HUNGARY.—*Militär-Zeitung.* Vienna: 1st August, 1898.—"Regimental Service." "The Spanish-American War." "The Telegraphs in Time of War." 9th August.—"The Position of Cadets." "Politics and War." "An Episode of the Campaign of 1805 in Germany." 17th August.—"Our Emperor's Birthday." "An Episode of the Campaign of 1805 in Germany" (*concluded*). "Re-construction of the French Infantry School of Musketry." "The End of the Spanish-American War." 25th August.—"Orders and Decorations." "Gunnery."

Organ der Militär-wissenschaftlichen Vereine. Vienna: August, 1898.—"The Bread and Meat Supply in War, historically considered." "How are Corrections worked out on the Rifle Range"? "Ada-Kaleh." "The Three Seasons for Company Training." "The Retreat of the Rohan Brigade in the Campaign of 1805."

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Battle of Frœshwiller." "The Commissariat Officer with a Group of Batteries." "The Recruitment of the German Army in 1897." 20th August.—"Study of a Retreat and the Passage of a River." "The Battle of Frœshwiller" (*continued*). "General de la Motte Rouge: His Campaigns and Memoirs." 27th August.—"Study of a Retreat and the Passage of a River" (*continued*). "The Battle of Frœshwiller" (*concluded*).

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ITALY.—*Rivista di Artiglieria e Genio.* Rome: July and August, 1898.—"On the Order of Fire in Campaigning Batteries." "Old and New Equipment of Military Stables." "Fortress Artillery in Relation to the Instructions." "On the Pressure of the Wind on Buildings." "The Pierucie Telegoniometer." "Design for a Levelling Quadrant for Aiming Siege Artillery." Miscellaneous:—"High Angle *versus* Shell Fire"; "Fire Regulations for German Campaigning Artillery with New Material, 1896"; "New Safety Stirrup by Steenken"; "Improvements in Austrian 9-centimetre Field Artillery Material"; "Hotchkiss 75-millimetre Field Artillery Material"; "Recent Progress in Ballistics"; "Nordenfeldt Automatic Machine Gun, Model 1897." "Military Notes." "Notices of Books," etc.

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Revista Técnica de Infantería y Caballería. Madrid: 1st August, 1898.—"Geography of the Canaries." "A Page in the History of Santa Cruz, Teneriffe." "Central Administration in the various Military States of Europe" (*concluded*). 15th August.—"Our Friends the English." "The Geography of the Canaries." "The English Navy in the time of Charles II." "The Capture of Duren" (an Initial Episode in the Campaign in Germany, 1543).

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: August, 1898.—"General A. de la Harpe." "Quick-firing Field Guns from a Tactical Point of View." "Dynamite Guns."

NOTICES OF BOOKS.

Admiral Duncan. By the Earl of CAMPERDOWN. London: Longmans, Green, & Co., 1898.

What is about the centenary of the great victory off Camperdown, is not an inopportune moment to place before a public, now more than perhaps at any other period of its history interested in the British Navy and its records, the story of the hero of that great day, and one of the greatest amongst the many sea heroes that these little islands have produced. None the less acceptable is its production in the fact that it comes to us from the pen of the great-grandson of the hero himself; and his task has not been an easy one, for curiously enough there has not up to now been put on record a connected story of Duncan's life and services. And the fact is all the more strange, for there is no doubt that in the hearts of those who were of his own time and period he was one of the most popular and universally admired of the many great seamen of the age. We have for long had written memorials of the comparatively more recent of our great sea heroes, and such memorials written by men either contemporary with them or very nearly so. Boscawen, Hawke, Keppel, Howe, Rodney, Hood, St. Vincent, Nelson, and Collingwood, have all thus been enshrined in their country's literature. Duncan's name, however, has never been so enshrined. And yet it has never become a tradition, for so prominent is it in the history of the period that there are but few English schoolboys who do not know that—

"Fifteen sail were the Dutchmen bold,
Duncan he had but two;
But he anchored them fast where the 'Texel' shoaled,
And his colours aloft he flew.
'I've taken the depth to a fathom,' he cried,
'And I'll sink with a right good will:
For I know when we're all of us under the tide
My flag will be fluttering still.'"

Duncan was like most naval officers—it is but the outcome of their training—regular and methodical in the extreme, and kept and endorsed all official letters and orders which he received both as a captain and as an admiral; but none the less he "did not do much to assist any one who might be desirous of perpetuating his memory. Comparatively little of his handwriting remains. During his earlier service the facilities for writing at sea cannot have been great, nor does he appear to have been at any time much given to placing his thoughts and ideas on paper; he was a man of action and not of words." The main material, in fact, that his biographer has had to rely on would seem to be: (1) Lord Spencer's private letters to him during his command of the North Sea fleet, and including the period of the Mutiny at the Nore, and (2) the documents preserved in the Public Records Office which include "his despatches to the Admiralty during his command in the North Sea, of which some are in his own hand, as well as two or three autograph letters written to the Admiralty at important moments." Unfortunately, all Duncan's private letters to Lord Spencer were accidentally destroyed at Althorp. Meagre, however, as has been the documentary evidence at his disposal, Lord Camperdown has given us a grand literary portrait of the great Admiral, and, unassumedly and without effort, brings out into strong relief the marvellous seamanlike qualities of the man. Indeed, the man's personality was of the most lovable. Standing six feet four, and big in proportion,

he was one of the handsomest men in the Navy, and of a type of good looks that showed the intelligence that actuated the mighty frame. It is recorded of him that "when a young lieutenant walking through the streets of Chatham, his grand figure and handsome face attracted crowds of admirers, and to the last he is spoken of as singularly handsome." He was the idol of his men, as is witnessed by a letter from a seaman in the fleet, who writes to his father after the battle of Camperdown :—"They say as how they are going to make a lord of our admiral. They can't make too much of him. He is heart of oak ; he is a seaman every inch of him, and as to a bit of a broadside it only makes the old cock young again." Cool and fearless, he was not foolhardy, but in the execution of the work which his duty devolved on him thought of nothing except the task on which he was engaged. This absolute indifference to personal danger left his judgment calm and clear, and is evidenced over and over again throughout his career, from the days when he was a lieutenant in Hawke's fleet, and always the first to volunteer for the boats or lead a boarding party, down to his crowning victory at Camperdown. At Camperdown he was near seventy years of age, and never for a second did his nerve or his coolness forsake him. For the fact that his life's story is now connectedly put on record we owe much to Lord Camperdown. It is one typical of that group of sea heroes, unique to the British race.

"Admirals all, they said their say
(The echoes are ringing still),
Admirals all, they went their way
To the haven under the hill.
But they left us a kingdom none can take—
The realm of the circling sea—
To be ruled by the rightful sons of Blake,
And the Rodneys yet to be."

Manœuvre Orders. (*Notes on Writing Orders at Field Days, Staff Rides, War Games, and Examinations.*) By Major F. J. A. TRENCH, R A., *p.s.c.*, D.A.A.G., Ireland. London: W. Clowes and Son, 1898. Price 1s.

Hints to Young Officers. By an ADJUTANT. Aldershot: Gale and Polden. Price 1s.

Die fünfte Kavallerie-Division von 3en September, 1870, bis zum 25en Mai, 1871. By JUNK, Rittmeister a.D. 8vo. Berlin, 1898.

Mon Neuvième Voyage au Sahara et au Pays Touareg; Mars—Juin, 1897. By F. FOUREAU. 8vo. Paris: 1898.

Siège de Paris: Chatillon, Chevilly, La Malmaison (*7 Août—27 Octobre, 1870.*) By P. LEHAUTCOURT. 8vo. Paris: 1898.

Siège de Paris: Le Bourget—Champigny (*28 Octobre—3 Décembre, 1870.*) By P. LEHAUTCOURT. 8vo. Paris: 1898.

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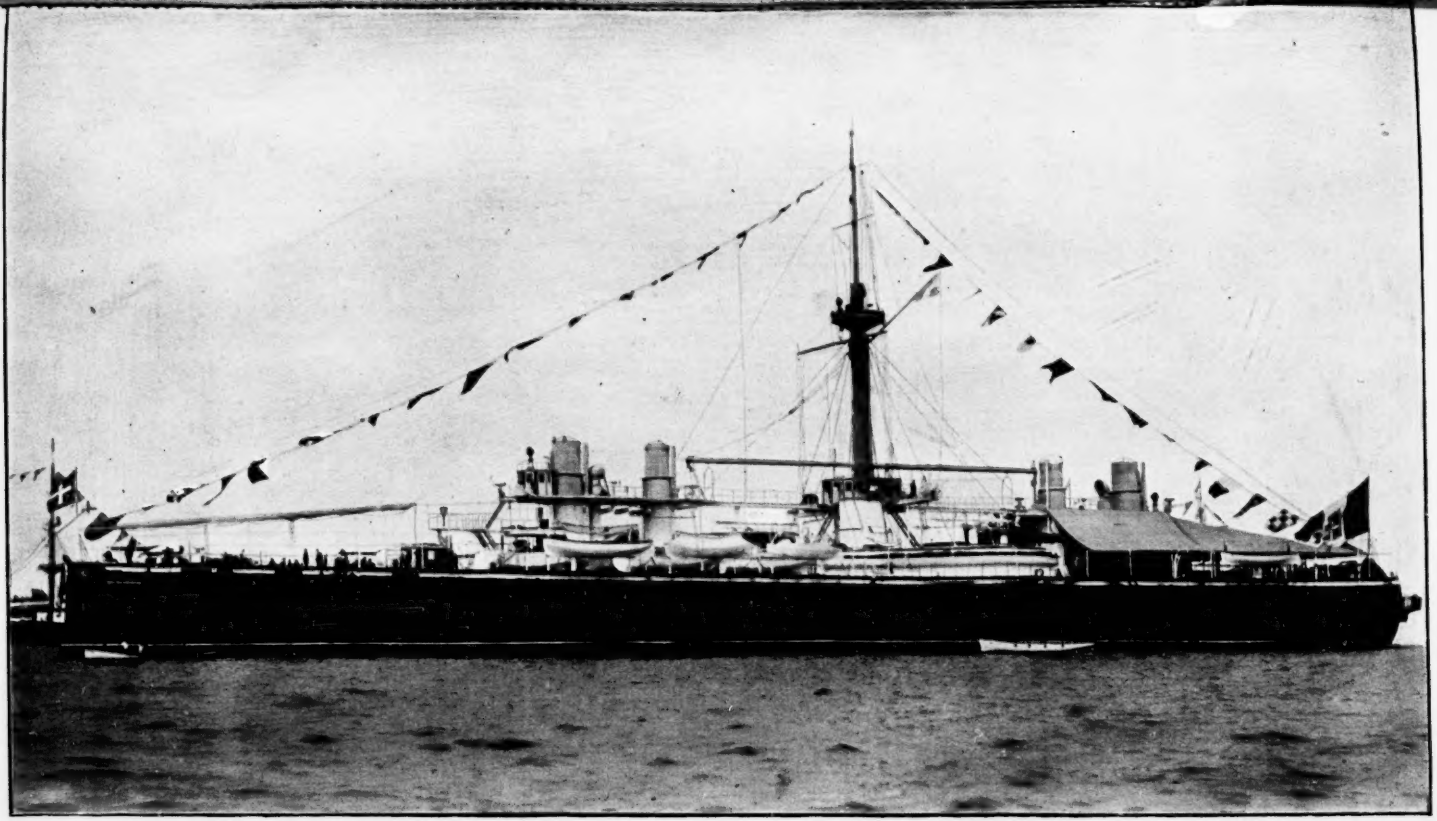
Die fünfte Kavallerie-Division von 5ten September [illegible] bis zum 5ten Mai [illegible]. By JUNK, Rittmeister a.D. 8vo. Berlin, 1898.

Mon Neuvième Voyage au Sahara et au Pays Touareg; Mars–Juin [illegible]. By F. FOUREAU. 8vo. Paris: 1898.

Siège de Paris: Chatillon, Clevilly, La Malmaison (7 Août–17 [illegible]). By P. LEHAUTCOURT. 8vo. Paris: 1898.

Siège de Paris: Le Bourget—Champigny (30 Octobre–3 Décembre 1870). By P. LEHAUTCOURT. 8vo. Paris: 1898.



J. J. K. & Co., London. **ITALIAN FIRST-CLASS BATTLE-SHIP "LEPANTO," 14,400 TONS, 15,800 I.H.P.**

Armament—Four 100-ton guns in barbette, protected by 19-inch compound armour; eight 6-inch and four 4·7-inch Q.F. guns, with 48 small Q.F. and machine guns. No armour belt, but funnel combings protected by 16-inch armour; there is a 3-inch armour deck and 6-inch armoured ammunition tube.

ERRATA IN SEPTEMBER No.

Page 1116.—Revue du Cercle Militaire, for "Fighting Tactics of Mountain Artillery," read "of Mountain Infantry."

Page 1118.—Rivista di Artiglieria e Genio, for "On the order of fire in Campaigning Batteries," read "Field Batteries."